Congestion Management Process Report 2011

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CHAPTER 1 – INTRODUCTION

The Congestion Management Process CMP) is a process for the safe and effective management and operation of the transportation system to reduce congestion. The CMP is a requirement of the Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU) enacted in 2005. The process is the latest of a series of transportation planning strategies to address urban congestion.

In 1991, the Intermodal Surface Transportation Efficiency Act (ISTEA) required the development and implementation of a Congestion Management System (CMS) in each transportation management area (TMA) to identify, measure, and monitor congestion as well as to address the sources of congestion. ISTEA shifted emphasis away from the construction of new infrastructure to better maintenance and management of the existing transportation system. Congress updated this emphasis in 1998 with the passage of the Transportation Efficiency Act for the 21st Century (TEA-21).

Originally, states were required to develop a statewide CMS. However, this requirement was eliminated, and each TMA in Ohio is now responsible for its own CMP. A TMA is defined as a metropolitan area with a population of more than 200,000. The SCATS planning area includes all of Stark County and contains more than 378,000 people. As a result, the SCATS area has been designated as a TMA and must implement a Traffic Congestion Management Process (CMP) in cooperation with the Ohio Department of Transportation (ODOT).

What is the Congestion Management Process?

The CMP is a planning tool used by SCATS to analyze the transportation system and plan and implement travel demand reduction and operational management strategies to reduce or minimize congestion. The purpose of the CMP is to:

- Manage or reduce the existing congestion
- Efficiently utilize existing transportation facilities
- Maximize the mobility of persons and goods
- Keep future congestion problems from occurring.

Congestion

Congestion occurs in two basic forms – reoccurring and non-reoccurring. Reoccurring congestion is caused by travel demand exceeding travel system capacity. It occurs every day where roads are too narrow, signal timing is inappropriate, or transit systems do not provide enough service. The SCATS CMP is designed to analyze and address this type of congestion. Non-reoccurring congestion is caused by incidents affecting the system. The incidents may affect either the demand or capacity of the system. Accidents, vehicle breakdowns, short-term construction, and weather are all incidents that affect the capacity

of the system and cause congestion. Sporting events, rock concerts and other major traffic generating incidents all may cause congestion by temporarily increasing the demand on the transportation system.

Incorporation with the Transportation Plan and TIP

SCATS uses the CMP for input in the development of the SCATS Transportation Plan to identify the areas and extent of existing and future congestion, to develop specific strategies to minimize congestion, to help develop the SCATS TIP and to monitor and evaluate the congestion management strategies.

Scope and Purpose

The purpose of this report is to document the performance of the transportation system in the SCATS area and identify appropriate strategies to reduce congestion. This report contains 6 chapters. In Chapter 2, SCATS CMP procedures are documented. A system-wide analysis of the highway system is the subject of Chapter 3. Chapter 4 focuses on public transportation and identifies the level of service provided by mass transit routes. Chapter 5 presents the CMP strategies recommended for the SCATS area. Finally, Chapter 6 is a summary and conclusion of the entire report.

CHAPTER 2 – CMP SYSTEM AND PROCEDURE

In this chapter, we describe the CMP process and document the procedures utilized.

CMP Procedures

A management system is a systematic process designed to assist decision-makers in selecting cost-effective strategies to improve the efficiency and safety of, and protect the investment in, the nation's transportation infrastructure. A management system includes:

1. System Identification
2. Data collection
3. Performance measures.
4. Analysis.
5. Evaluation and selection of appropriate strategies to address the needs.
6. Evaluation of the effectiveness of the implemented strategies.

CMP System Description

According to the Federal-Aid Policy Guide, the CMP in a TMA should cover all transportation facilities and modes, including highway, transit, and intermodal facilities. The SCATS CMP planning area includes of all of Stark County. The area contains about 598 square miles. The focus of the CMP will be on the persons and goods movement over a network of freeways, arterials, transit routes, and other important related highway facilities. These routes serve as the fundamental network of a defined set of CMP corridors/locations. This system connects the area's main urban/activity centers and intermodal facilities.

There are two components to the SCATS CMP monitoring network – a Highway Component and a Transit Component.

Highway System

Transportation engineers and planners use the concept of functional classification to divide the highway system by function or type of service they provide. SCATS uses the Federal Highway Administration (FHWA) functional classification system. There are separate classifications for urbanized areas, small urban and rural areas. Urbanized areas are defined by the census and generally include a city with a population greater than 50,000 and the surrounding areas that are developed. Small urban areas are those cities and surrounding areas with a population of 5,000 or more not within any urbanized area. Rural areas are those outside the boundaries of small urban or urbanized areas.

Within Stark County are approximately 3,000 miles of streets and highways functionally classified as follows:

9/8/11	Miles		
Classification	**Rural**	**Urban**	**Total**
Interstates	**3.13**	**15.41**	**18.54**
Freeways & Expressways		28.03	28.03
Other Principal Arterials		111.83	111.83
Principal Arterials	**36.08**	**139.86**	**175.94**
Minor Arterials	**71.76**	**162.16**	**233.92**
Major Collectors	87.06		85.98
Minor Collectors	101.64		101.32
Collectors	**188.70**	**216.68**	**404.30**
Locals	**575.52**	**1,638.93**	**2,214.45**
Total	**875.19**	**2,173.04**	**3,048.22**

Table 2-1: Stark County Functional Classification of Roads

Most of Stark County is in the Canton Urbanized Area including the Cities of Canton, Massillon, North Canton and Louisville. It also includes East Canton, Hills & Dales, Meyers Lake and Navarre Villages as well as portions of Bethlehem, Canton, Jackson, Lake, Lawrence, Nimishillen, Osnaburg, Perry, Pike, Plain and Tuscarawas Townships. The Akron Urbanized Area extends into Stark County and includes Canal Fulton and Hartville and portions of Jackson, Lake and Lawrence Townships. The Alliance small urban area consists of the City of Alliance and portions of Lexington and Washington Townships. The remainder of Stark County is rural.

Within a given area, roads are classified as to their role in serving travel mobility needs versus land access needs. The highest classification, the interstate system, is devoted entirely to serve travel needs with no access to adjacent property allowed. Arterial streets and highways serve the longer distant trips between cities and connect different areas of the larger cities. Although access to adjacent property is allowed, it is often restricted to allow the arterial to serve travel needs. Local roads and streets serve adjacent property. Through traffic on the local street system should be discouraged. Collectors serve a dual role of traffic mobility and land access. Locally important traffic generators are usually located along collectors. As their name implies, they also serve to collect traffic from the local street system and connect it to the arterial system.

Travel Demand Model Network

In order to determine future traffic volumes and analyze congestion, SCATS uses the travel demand model network. This network includes approximately 1,250 miles of roads covering all of Stark County including all roads classified as collector or above and other important local roads. The network contains roadway information from which basic highway capacities can be calculated. With the addition of volume information from traffic counts or traffic assignments, performance measures can be calculated. This

network is linked to the SCATS traffic counting database and GIS system in order to have the latest volume information available and to map data.

Transit System

The Stark Area Regional Transit Authority (SARTA) operates a fixed-route scheduled service throughout the entire county. Within Stark County SARTA operates 26 fixed routes serving an area of approximately 567 square miles and about 378,000 people. Principal communities served include the cities of Canton, Massillon, Alliance, North Canton, and Louisville; the village of East Canton; and Jackson, Plain, and Perry Townships. In addition to these services, SARTA operates a demand-response service tailored to the needs of persons with disabilities and the elderly.

The CMP Public Transportation Component includes those transit routes operated by the Stark Area Regional Transit Authority (SARTA) that provide regularly scheduled public transit service over a fixed route utilizing the CMP highway component. Data provided by SARTA is used to evaluate the ability of transit service to serve passengers and reduce highway congestion.

Data Collection

In order to monitor performance of the transportation system, each link of the transportation network is monitored. Two basic types of information are necessary. The first is information on system usage. For the current highway system, traffic volume counts are collected. Traffic volumes are obtained through the SCATS traffic counting program, which includes traffic counts from a wide variety of sources. This data is maintained on a regular basis and recent traffic counts are available for most links in the network. Future year traffic volumes come from the SCATS traffic assignments. Transit ridership data is monitored by SARTA.

The second type of information is system supply or system capacity. This information is calculated for the highway system based on information such as roadway width, number of lanes, turning lanes, traffic signal timing and other factors. Transit capacity is based on the number of buses and their seating capacity on each route.

Performance Measures Selected

Performance measures describe how severe the congestion is on a transportation facility. Congestion is not a technical term and can be interpreted in different ways. Performance measures describe and quantify congestion by measuring increases in delay and the amount by which capacity is exceeded. The transportation planning and engineering fields have generally used mode-specific performance measures to describe conditions on a particular mode. These measures include traffic volumes, capacities, and Level-of-Service calculations for motor vehicles, and peak loading points for transit modes.

Performance measures are used in system detection, strategy evaluation testing, and monitoring and evaluating. System detection is determining where the congestion problems are occurring within the system. Strategy evaluation testing is the

determination of what strategies will be most effective in reducing congestion in a particular area. Monitoring and evaluating tell how well the strategies are working.

SCATS has selected the following performance measures to be used in its CMP:

Measure	Facility/Mode
Vehicle Hours of Delay	Region
Level of Service	Facility
Volume-to-capacity Ratio	Facility
Load Factor	Transit
Congestion Index	Region

Table 2-2: Selected Performance Measurements

Performance Measure Definitions

These performance measures were selected from a list of measures recommended by ODOT and are described below:

- Vehicle Hours of Delay – Delay time is the difference between free flow time to travel a facility and the congested time to travel the facility. Vehicles Hours of Delay is calculated by multiplying the delay time by the daily volume to obtain daily vehicle hours of delay.
- Level of Service - (abbreviated LOS) a measure of the quality of service provided by a highway under a given traffic volume and other conditions. Levels of service range from A to F with A representing an excellent level of service and F representing a failure condition.
- Volume-to-Capacity ratio - (abbreviated V/C ratio) the traffic volume on a roadway divided by the capacity of the roadway. For the SCATS CMP, all capacities were determined at LOS C. Therefore, V/C ratios over 1.0 indicate operating conditions worse than LOS C.
- Load Factor - the average passenger-to-capacity ratio for transit vehicles.
- Roadway Congestion Index - an index developed by the Texas Transportation Institute. This index is useful for comparisons of urban networks. The resulting ratio indicates an undesirable level of area-wide congestion if a value greater than or equal to 1.0 is obtained. The congestion index is a macroscopic measure, which does not account for local bottlenecks or variations in travel patterns that affect time of travel or origin-destination combinations. It averages all the roadway segments within an urban area. There will be locations in the urban area where congestion is much worse or better.

The congestion index is calculated by the following equation:

$$\text{Congestion Index} = \frac{\frac{(\text{Freeway VMT})^2}{\text{Freeway Lane Miles}} + \frac{(\text{Prin Arterial VMT})^2}{\text{Prin Arterial Lane Miles}}}{(14{,}000 \times \text{Freeway VMT}) + (5{,}500 \times \text{Prin Arterial VMT})}$$

Figure 2-1: Congestion Index Formula

Analysis

Once the system identification, data collection and performance measure selection steps have been completed, analysis of congestion can begin by using various methods, including:

1. The urban transportation planning models
2. ODOT's post-processing routine
3. Manual calculations
4. Available software packages (such as Highway Capacity Software)
5. Field observations

The SCATS urban transportation planning models were chosen to analyze the existing transportation system. Roadway data was coded for all routes in the traffic assignment network. A capacity calculator routine calculates the capacity of each network link. The capacity calculator output is a daily capacity based on Level of Service C. Existing average daily traffic volumes are divided by this capacity to calculate a Volume-to-capacity or V/C ratio.

Future conditions are estimated by loading future trips on either the existing base network or a future planned network. Comparisons are made between a base congestion and future congestion. The performance measures identified earlier are used as indicators to measure the performance of the transportation system and evaluate alternative strategies to deal with congestion.

Existing congestion may also be identified and quantified by more direct measures such as speed and delay runs and other traffic engineering analysis tools. Certain facilities may also require a more detailed analysis of congestion using the Highway Capacity Manual operations analysis. This analysis can be used to quantify changes in congestion due to traffic signal modifications and other operational improvements which the network based methods are not sensitive enough to analyze.

CHAPTER 3 – SYSTEM-WIDE ANALYSIS

In order to plan effectively for transportation improvements, it is first necessary to understand the performance of the existing transportation system. This chapter identifies existing and future congestion based on the results of level of service analyses. System-wide statistics are used to evaluate the overall operation of the transportation system.

System-wide Statistics

System-wide statistics were developed to establish the baseline performance of the existing transportation system, calculate how congestion would be affected by traffic growth in the future, and evaluate the performance of the SCATS Transportation Plan.

The travel demand models furnish both individual highway segment volumes and capacities. Capacities are calculated using functional class, area type, number of lanes, intersection geometry and pavement width. Intersections are modeled by traffic control type (pre-timed signal, interconnected signal, all-way stop, two-way stop or uncontrolled).

Capacity is defined as the total number of vehicles in both directions that can pass over a given section of roadway under a given set of operating conditions or level of service. CMP capacities are daily capacities. Daily capacities are used because only average daily traffic volumes are available on a system-wide basis. The daily capacity is calculated by dividing the peak hour capacity by the "K" factor. The "K" factor represents the portion of the typical daily traffic during the peak hour traffic and is usually 10%. The CMP roadway capacity is based on Level of Service C. Those links operating at a volume-to-capacity ratio greater than 1.0 were identified as deficient. The volume-to-capacity ratios, corresponding to each level of service, are shown below:

Level of Service	V/C Ratio
A	< 0.50
B	0.51 – 0.75
C	0.76 – 1.00
D	1.01 – 1.25
E	1.26 – 1.60
F	> 1.60

Table 3-1: V/C ratios to service levels

Existing Highway System Conditions

Table 3-2 shows existing (2010) highway system conditions. The traffic is from a traffic assignment using 2010 independent variables. Traffic assignment volumes were used because existing traffic counts are not available for all links of the highway system. The traffic assignment models produce directional traffic volumes. The models split daily traffic volumes into hourly volumes by direction and then computes volume-to-capacity ratios, levels of service, vehicle miles traveled, vehicle hours traveled, average speed, and miles traveled by level of service.

The congestion analysis shows approximately 25.3 miles of the existing highway system operating at levels of service D, E or F. The roadway congestion index of this system was calculated to be 0.63.

Table 3-2: Existing Traffic on the Existing Highway System

Facility Type	Miles at Level of Service						Total Miles	Lane Miles	Vehicle Miles	Veh Hours of Delay
	A	B	C	D	E	F				
Freeway	18.77	8.92	9.31	0.52	-	-	37.52	93.80	1,021,292	882.2
Expressway	57.80	2.61	0.90	-	-	-	61.32	130.43	788,536	150.9
Ramp	17.83	3.85	2.12	1.20	-	-	25.01	25.84	104,505	235.5
Arterial	284.51	70.88	29.20	9.39	4.46	1.03	400.47	972.11	3,707,483	4773.1
Collector	368.59	24.40	11.08	3.95	2.24	1.14	411.41	845.15	1,461,379	1790.1
Local	288.35	14.25	4.25	0.61	0.43	0.33	308.22	619.59	405,897	414.5
Grand Total	1036.85	124.92	56.87	15.67	7.13	2.50	1243.94	2686.92	7,489,093	8246.3

This system includes all highway facilities that currently exist. Existing levels of service on this system are shown on Map 3-1. Congested locations include I-77 from SR 800 to Portage Street, US 62 between California Avenue and I-77, US 62 south of US 30, SR 241 from Massillon to SR 687, SR 172 in Canton and Perry Township, SR 800 south of Canton, US 62/SR 173 in Alliance, SR 93 in Canal Fulton, Perry Drive and Jackson Avenue in Perry Township, US 30 in and around East Canton, SR 619 in the Uniontown area, the Belden Village area, and various streets in and around downtown Canton. While the system analysis was carried out with directional capacities and directional volumes, the levels of service shown on this map and subsequent maps in this chapter, reflect a level of service calculated by adding together the directional volumes and dividing by the total of the two directional capacities. This was done because a link couldn't be drawn in different colors if the directions had different levels of service.

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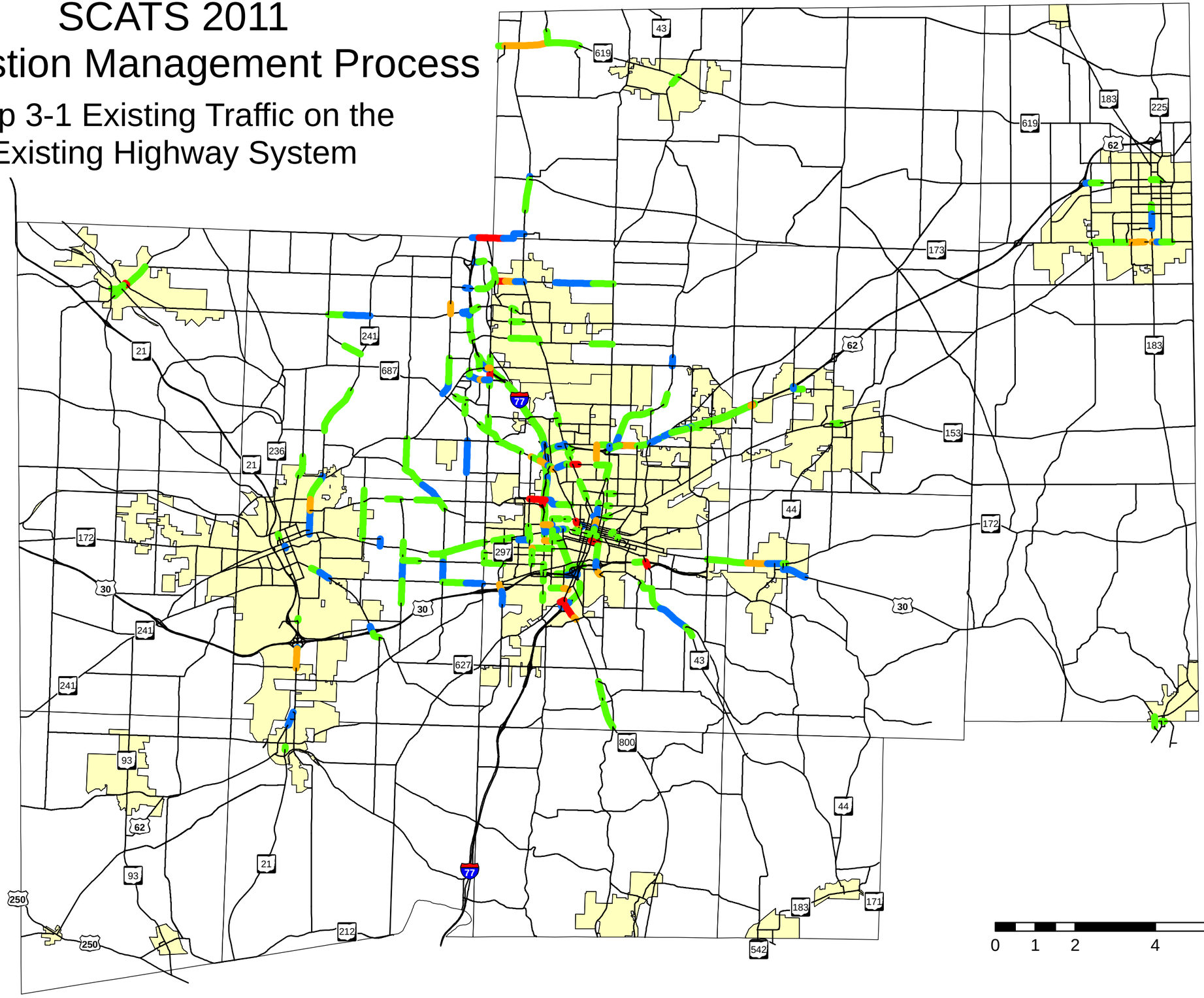
Map 3-1 Existing Traffic on the Existing Highway System



N
W E
S

Legend

Level of Service

- A
- B
- C
- D
- E
- F

0 1 2 4 6 8 Miles

As shown in Figure 3-1, most delay occurs on the arterial and collector systems on the relatively few links with levels of service E or F.

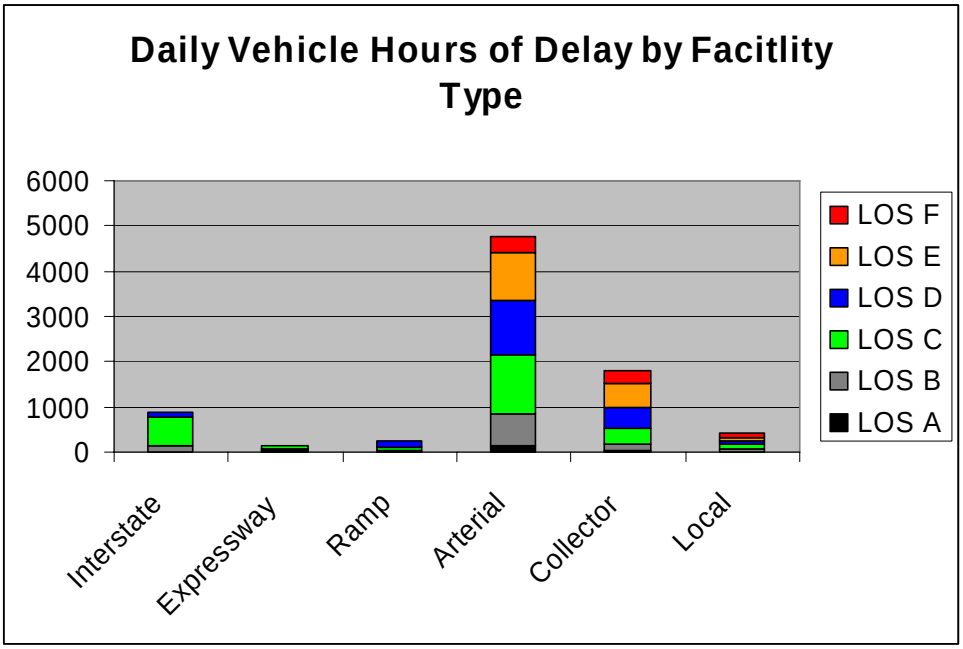


Figure 3-1: Vehicle Hours of Delay - Existing Traffic on the Existing Highway System

Comparison with previous CMP analysis

Part of the CMP is to monitor current conditions compared to the past. Table 3-3 shows the analysis done for the highway system in 2007.

Table 3-3: Year 2007 Traffic on the 2007 Highway System

Facility Type	Miles at Level of Service						Total Miles	Lane Miles	Vehicle Miles	Veh Hours of Delay
	A	B	C	D	E	F				
Freeway	18.49	12.94	3.89	1.48	0.42	-	37.21	86.36	930,464	990.8
Expressway	79.53	2.37	0.80	-	-	-	82.70	173.14	810,492	76.4
Ramp	18.84	2.97	2.79	0.43	-	-	25.04	25.76	94,325	189.9
Arterial	265.80	73.07	23.15	4.88	2.82	0.96	370.69	896.45	3,231,299	7,179.9
Collector	374.25	22.13	11.94	3.22	1.22	0.36	413.13	847.19	1,331,879	2,622.7
Local	300.77	8.13	1.77	0.54	0.41	0.08	311.71	626.69	382,119	380.6
Grand Total	1,057.68	121.61	44.35	10.56	4.88	1.41	1,240.48	2,655.59	6,780,577.27	11,440.1

The 2007 analysis looked at traffic congestion on the 2007 highway system. Tables 3-2 and 3-3 show improvements in service on the interstate system between 2007 and 2010. In 2007, 1.9 miles of the interstate operated below LOS C. In 2010, only 0.52 miles of interstate operated below LOS C and nothing was below LOS D. The arterial system showed increases in miles operating below LOS C, from 8.7 to 14.88. This is probably due to several miles being reclassified from expressway to arterial in the model. This

would lower the calculated capacities on those roads. The miles of collectors operating below LOS C increased slightly. The congestion index rose from 0.55 to 0.63, however, total vehicle hours of delay dropped from 11,440 to 8,246. Total VMT increased from 6.78 million to 7.49 million.

2015 Conditions on the Existing-Plus-Committed Highway System

Table 3-4 shows 2015 conditions on the existing-plus-committed (E+C) highway system. Previously, we showed the existing (2010) conditions on the existing (2010) system in order to look at how the CMP is working. The 2010 conditions were compared to the existing conditions of the previous CMP in 2007. However, because several projects are committed to be built over the next few years in the Transportation Improvement Program (TIP), it is not realistic to compare the 2010 system to the 2030 system. Therefore, we will compare the E+C system to the 2030 system. The E+C highway system is the current highway system as it exists today plus the projects scheduled to be built in the TIP.

The congestion analysis shows about 17 miles of the system operating below LOS C. The roadway congestion index of this system was 0.59.

Table 3-4: 2015 Traffic on the E+C Highway System

Facility Type	Miles at Level of Service						Total Miles	Lane Miles	Vehicle Miles	Veh Hours of Delay
	A	B	C	D	E	F				
Freeway	18.77	15.80	2.94	-	-	-	37.52	93.80	986,991	651.9
Expressway	58.20	2.30	0.81	-	-	-	61.32	130.43	724,936	86.1
Ramp	17.96	4.06	2.60	0.39	-	-	25.01	25.84	95,782	160.5
Arterial	299.94	66.52	23.40	6.84	3.28	0.47	400.47	974.95	3,458,586	3516.3
Collector	375.93	21.07	9.37	2.95	1.11	1.07	411.51	845.05	1,352,449	1383.6
Local	291.32	12.79	3.08	0.35	0.36	0.21	308.11	618.60	373,029	319.0
Grand Total	1,062.13	122.54	42.2	10.55	4.75	1.76	1,243.93	2,688.67	6,991,773	6117.4

This system includes all highway facilities that currently exist plus all projects in the 2012-2015 TIP. Levels of service on this system are shown on Map 3-2. Completion of the TIP projects eliminates freeway miles operating below level of service C. Total miles operating at LOS D, E, and F drop from 25.3 to 17.0. Total delay decreases from 8246 hours to 6117 hours. Congested locations include US 62 between Broadway Avenue and I-77, Applegrove Street between North Main Street and Whipple Avenue, Mount Pleasant Street between Cleveland Avenue and Lauby Road, SR 619 west of Hartville, Wales Avenue in Massillon, US 62 south of US 30, Perry Drive south of SR 172, Genoa Avenue south of SR 172, US 30 in East Canton, 12th Street NW near I-77, SR 800 near I-77, and State Street in Alliance.

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Map 3-2 2015 Traffic on the E+C Highway System

N
W E
S

Legend

Level of Service

- A
- B
- C
- D
- E
- F

0 1 2 4 6 8 Miles

As shown in Figure 3-2, most delay occurs on the arterial and collector systems on the links with levels of service C, D, or E.

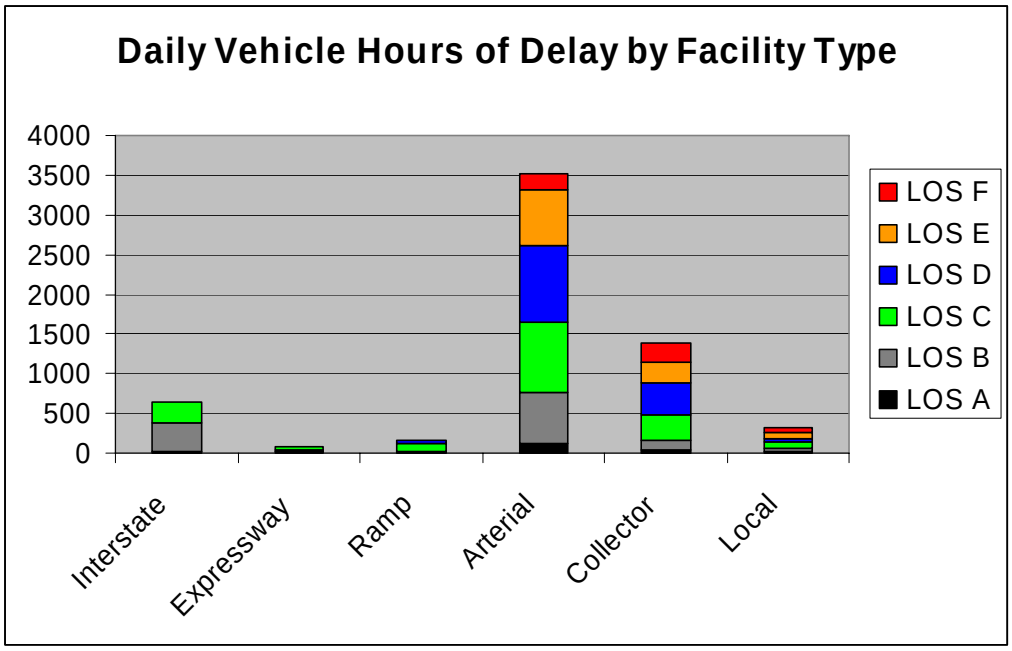

Figure 3-2: Vehicle Hours of Delay - 2015 Traffic on the E+C Highway System

Future Conditions on the E+C Highway System

Table 3-5 shows future conditions on the E+C highway system. This is the No-build condition that transportation planners analyze as a basis for planning future improvements. The future traffic is from a traffic assignment using 2030 independent variables. The 2030 traffic figures show a total of 7.96 million daily vehicle miles of travel compared to 6.99 in 2015. The congestion analysis shows approximately 25.2 miles of the no-build highway system operating at levels of service D, E or F. The roadway congestion index of this system was calculated to be 0.67 compared to 0.59 in 2015. The daily vehicle hours of delay rose from 6100 in 2015 to 8600 in 2030.

Table 3-5: Future Traffic on the E+C Highway System

Facility Type	Miles at Level of Service						Total Miles	Lane Miles	Vehicle Miles	Veh Hours of Delay
	A	B	C	D	E	F				
Freeway	18.77	6.97	11.26	0.52	-	-	37.52	93.80	1,054,486	1018.4
Expressway	51.37	9.14	0.81	-	-	-	61.32	130.43	838,244	129.9
Ramp	17.96	3.40	3.03	0.62	-	-	25.01	25.84	102,495	217.8
Arterial	286.57	63.89	34.25	8.08	5.45	2.23	400.47	974.95	3,984,862	5253.5
Collector	367.96	26.12	11.84	3.12	1.49	0.98	411.51	845.05	1,542,587	1528.2
Local	289.73	11.29	4.34	2.02	0.52	0.21	308.11	618.60	435,026	498.0
Grand Total	1,032.36	120.81	65.53	14.36	7.46	3.42	1,243.93	2,688.67	7,957,700	8645.8

Levels of service for future traffic on this system are shown on Map 3-3. Congestion has grown worse compared to the 2015 analysis on Applegrove Street, Mount Pleasant Street, Wales Avenue, State Street, SR 619, US 62 south of US 30, US 62 between Harmont Avenue and Market Avenue, SR 93 in Canal Fulton, and US 30 in East Canton. In addition, I-77 is now congested from US 30 to Portage Street.

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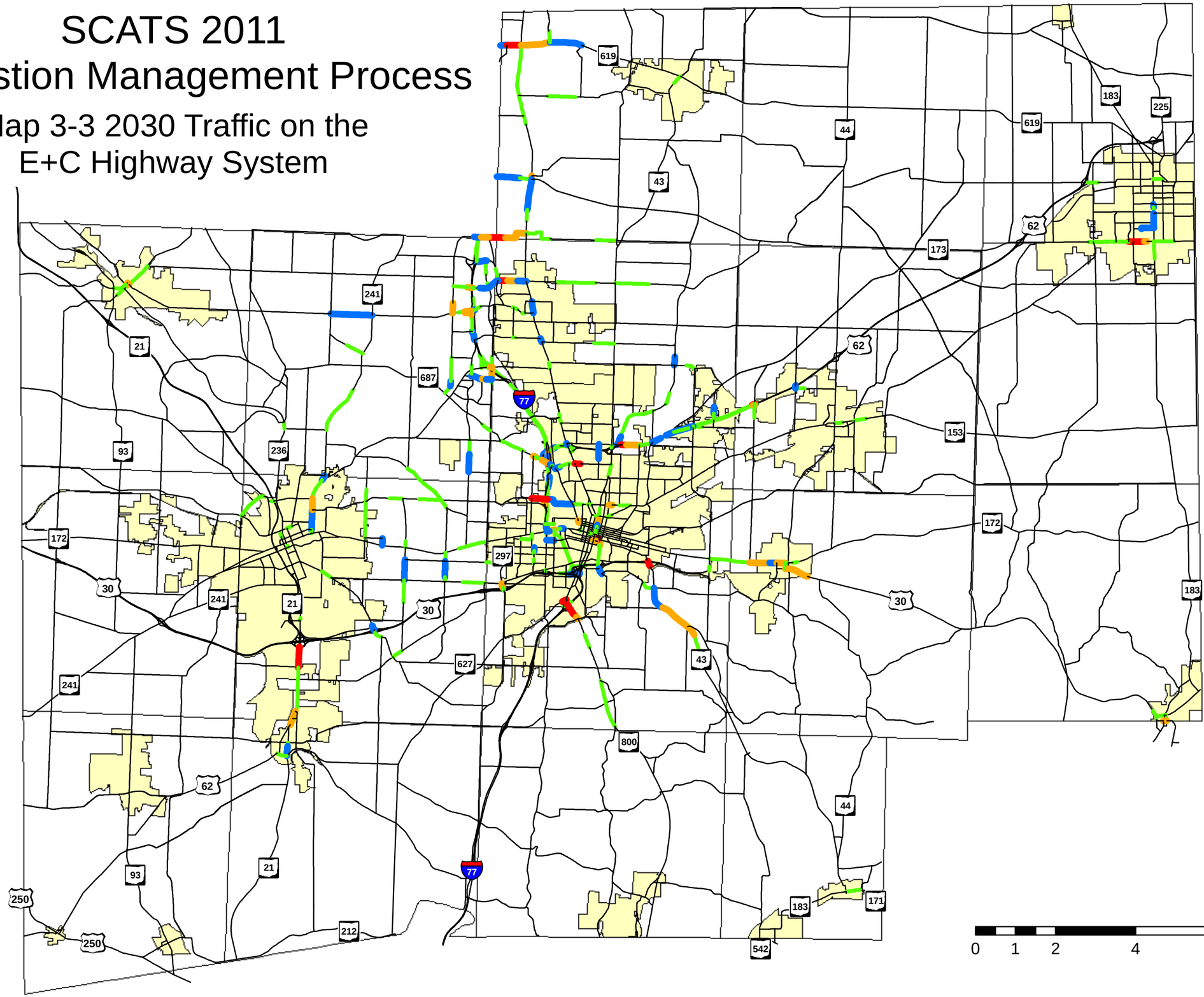
Map 3-3 2030 Traffic on the E+C Highway System



Legend

Level of Service

- A
- B
- C
- D
- E
- F

Miles

0 1 2 4 6 8

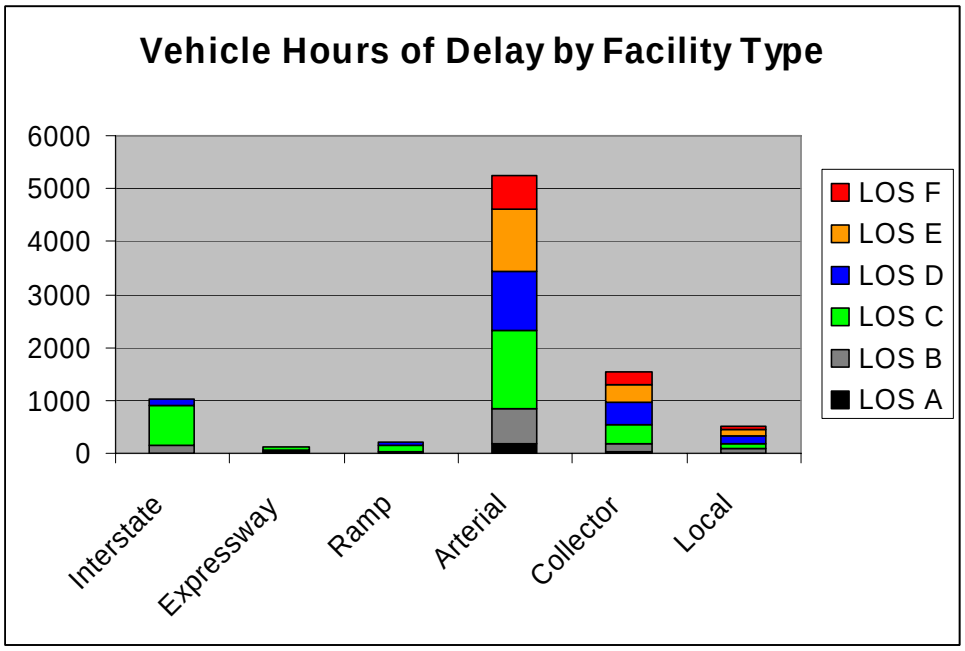


Figure 3-3: Vehicle Hours of Delay – Future Traffic on the E+C Highway System

Figure 3-3 depicts delay by facility type on the existing highway system with 2030 traffic. The chart shows that delay is more than 33% higher with future traffic. Arterial delay increases from 3500 hours to over 5200 hours. As in figure 3-2, most delay occurs on the arterial and collector systems.

Future Conditions on the Transportation Plan Highway System

Table 3-6 shows future conditions on the SCATS 2030 Transportation Plan Highway System. The Transportation Plan includes the extension of the US 30 freeway to Carroll County, major improvements to US 62 east of SR 43 and the extension of US 62 to Mahoning County. Total miles of expressway increase from 130 to 197.

Table 3-6: Future Traffic on the Transportation Plan Highway System

Facility Type	Miles at Level of Service						Total Miles	Lane Miles	Vehicle Miles	Veh Hours of Delay
	A	B	C	D	E	F				
Freeway	17.37	6.62	11.59	2.08	-	-	37.65	94.08	1,109,653	1,402.7
Expressway	88.12	14.48	0.90	0.81	-	-	104.32	197.05	1,439,902	336.3
Ramp	20.82	2.91	2.40	1.19	0.26	-	27.57	28.54	110,574	303.7
Arterial	302.74	55.58	26.11	5.73	3.45	1.53	395.14	997.43	3,700,329	3842.9
Collector	375.06	25.60	9.50	3.24	1.32	0.89	415.63	851.67	1,539,577	1532.5
Local	291.15	12.25	5.36	1.09	1.09	0.27	311.20	625.29	426,575	566.8
Grand Total	1,095.25	117.44	55.86	14.15	6.12	2.70	1,291.52	2,794.06	8,326,610	7984.8

By the year 2030, traffic on the CMP system is predicted to increase to 8.33 million daily vehicle miles on the 2030 highway system from 7.96 million vehicle miles on the no-build highway system. The roadway congestion index of this system was calculated to be 0.64, down from 0.67 under no-build conditions. Despite the increase in traffic, the miles of road operating at levels of service D, E and F drop from 25.2 miles to 22.97 miles. Vehicle hours of delay drop from 8646 hours to 7985.

Levels of service for this scenario are shown on Map 3-4. Comparison of this map to Map 3-3 shows improvements in levels of service on US 30 in East Canton, I-77 in Canton, SR-619 west of Hartville, Mount Pleasant Street, State Street in Alliance, Genoa Avenue and Perry Drive in Perry Township.

SCATS 2011
Congestion Management Process

Map 3-4 2030 Traffic on the 2030 Highway System

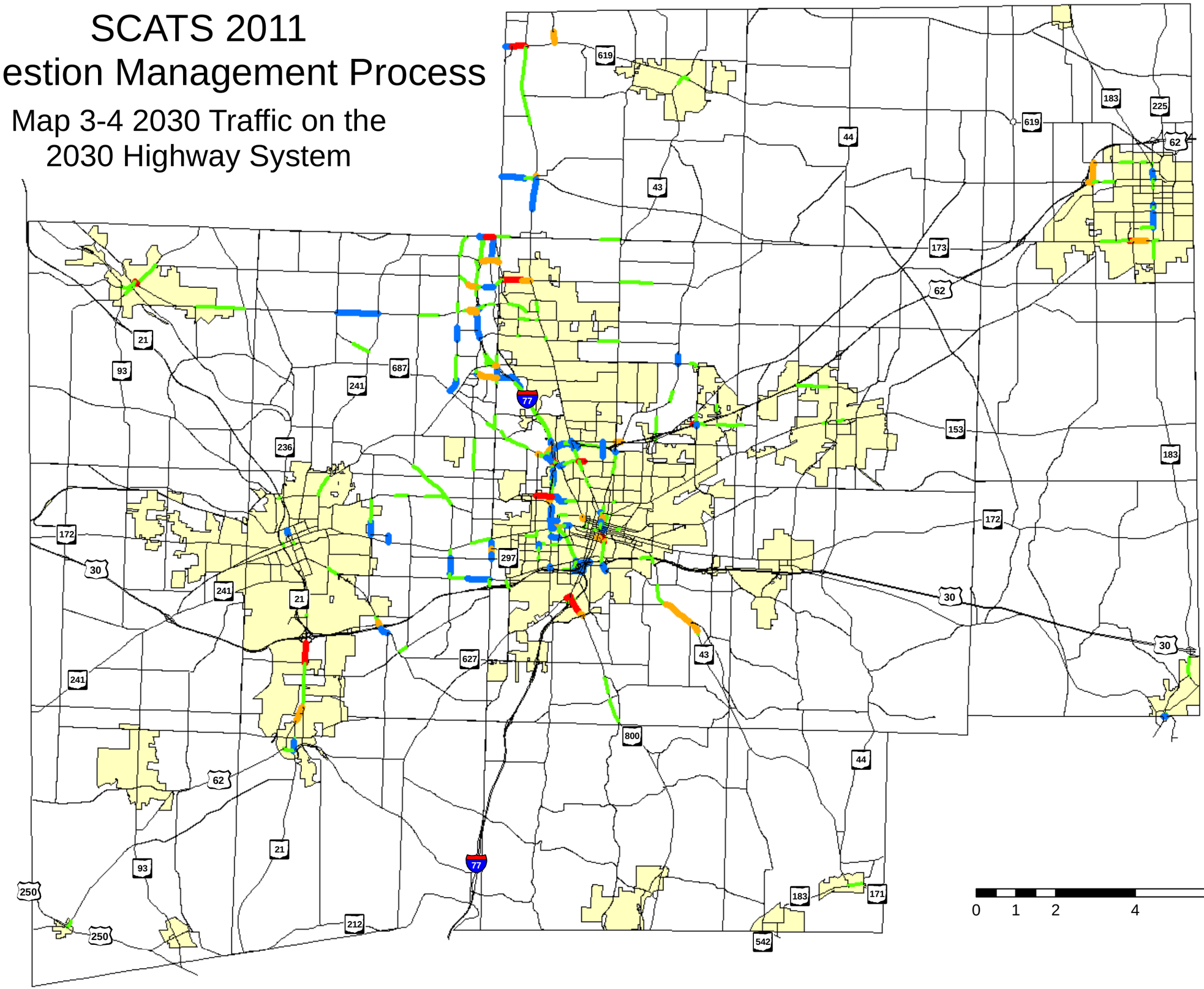


Figure 3-4 depicts delay by facility type on the Transportation Plan network. As in previous scenarios, most delay occurs on the arterial and collector systems. Interstate delay actually increases in this scenario, but Arterial and Local delay decreases.

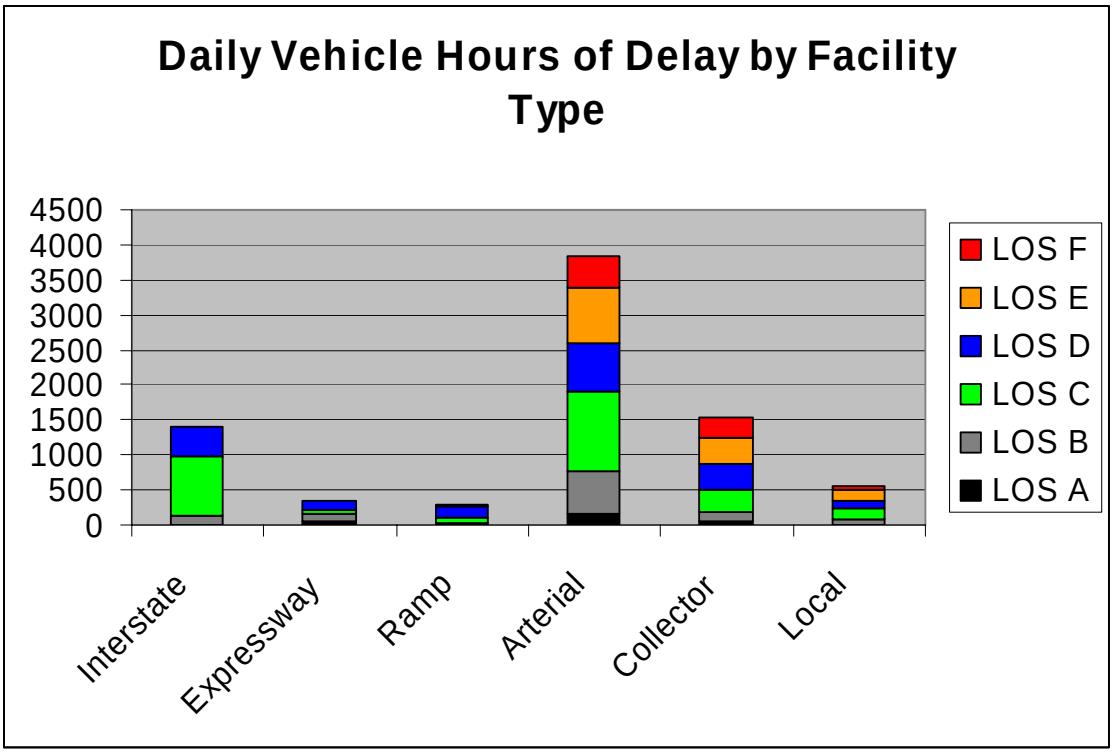


Figure 3-4: Vehicle Hours of Delay – Future Traffic on the 2030 Plan Highway System

Summary of System-wide Analysis

This chapter has presented statistics on the system-wide performance of the existing and planned highway system with existing and future traffic. The analysis was completed using the SCATS travel demand models. These models are appropriate for this level of study, but the limitations of this analysis must be recognized. The volumes produced by the travel demand models are not always a realistic depiction of existing or future traffic. In the models all traffic from a zone is loaded onto the network at single points, whereas in real life traffic enters onto collector and arterial streets in a dispersed pattern from many driveways and local streets. Because of the single point loadings on the model, some highway segments are overloaded if the traffic zone trips are large. This problem can be seen on the maps in this chapter on local and collector streets near colleges and hospitals. Another problem with our traffic models is the right angle of the boundary near the Akron-Canton Airport. In reality, a vehicle traveling from northwest Lake Township to Jackson Township would go through Summit County. Leaving and reentering the model area is not possible with our software. As a result, Cleveland

Avenue in Lake Township and Mount Pleasant Street in Jackson Township get assigned too much traffic in our models.

Another limitation of using the travel demand models is the calculation of capacity. The models calculate capacity using only a few factors coded into the model link data. A more sophisticated capacity analysis would take into account, the percentage of turns, signal timing and phasing, length of turn lanes and truck, bus and pedestrian volumes. The travel demand models provide only a general measure of capacity and may over or understate the true capacity of a highway segment. Readers should use caution in trying to use this report's figures on an individual roadway's volumes, capacities and congestion.

Despite the limitations stated above, the system-wide analysis in this chapter provides valuable information on the overall system performance and of the general magnitude and location of existing and future congestion. The chapter also provides an evaluation of the effectiveness of recent improvements to I-77.

CHAPTER 4 -- TRANSIT

The Stark Area Regional Transit Authority (SARTA) is Stark County's public transit agency, providing fixed-route service and Paratransit services. SARTA provides fixed-route service between major population centers and municipalities within the county and curb-to-curb Paratransit service for the elderly and physically and mentally challenged individuals.

Fixed-Route Services

SARTA has a number of routes and schedules designed to meet the needs of riders while maintaining a cost effective service:

- Twenty-Six (26) routes, which operate Monday through Saturday from approximately 5:45 a.m. to 9:40 p.m. These routes run daily on an hourly basis except for heavily used routes that run on the half-hour during peak time.
- Three (3) late night "industrial loops" operate Monday through Saturday from 9:45 p.m. to 1:30 a.m. with a limited number of runs.
- One JARC route with one morning (6.25 a.m.) and one afternoon loop (3:30 p.m.).
- One (1) express route operates between Canton Cornerstone and Akron from 5:45 a.m. to 7:45 p.m. with 15 hourly runs Monday through Friday. This route operates from 5:45 a.m. to 8:45 p.m. on Saturdays from Canton Cornerstone to Akron Canton Airport.
- Sunday Routes listed in the previous CMS have been terminated as a cost savings measure.

Table 4-1 SARTA Fixed-Route Service Areas

Route Number & Name	Trips Per Day	Service Days, Frequency of Service Service Area and Points of Interest
81L Airport Express	16	Operates Saturday hourly. Serves Belden Village Transit Center and Cornerstone Transit Center in downtown Canton (on Cherry Avenue). Akron-Canton Airport. Points of interest: Westfield Shopping Mall (Belden Village), Downtown Canton, Akron-Canton Airport.
81 Canton/Akron Express	15	Operates Monday through Friday hourly. Service Area: Akron (connection to METRO buses), Arlington Road, Akron-Canton Airport, Belden Village area and Cornerstone Zone in downtown Canton (on Cherry Avenue). Points of interest: Westfield Shopping Mall (Belden Village), Akron-Canton Airport, Staples on Arlington Rd, Akron Metro (Transit Center).

Route Number & Name	Trips Per Day	Service Days, Frequency of Service Service Area and Points of Interest
111/101 Canton Northeast: Harrisburg/Daleford	16	Monday-Saturday hourly. Service Area: 3rd Street NE. Belden Avenue, Harrisburg Road, 25th Street NE, Daleford, Harmont Avenue, Mahoning Rd. Points of interest: Walmart, Canton Negro Oldtimers, Coleman Senior Center Northeast Community Center, Crenshaw Middle School, C.H.I.P.s Townhomes and Ellis Dale Apartments.
102 Canton/Perry/ Massillon	24	Monday-Saturday hourly and limited ½ hour. Service Area: West Tuscarawas and Lincoln Way. Points of interest: Stark County Job and Family Services, Canton Centre Mall & Walmart, Perry Heights, Massillon Public Library.
103 Gibbs/Plain Twp.	16	Monday-Saturday hourly. Service Area: Northeast area of Canton: Gibbs Avenue, Colonial Blvd., Middlebranch Road, Rowland Avenue. Points of interest: Glen Oak High School, Oakwood Middle School, Park Farms, Firestone Loop, Gibbs School and Oakwood Square.
105 Cleveland Ave/ North Canton	24	Monday-Saturday hourly and limited ½ hour. Service Area: North area of Canton: Downtown Canton, Cleveland Avenue, Everhard Road, Belden Village Street , Holiday Avenue Points of interest: Life Skills, Fisher Foods, Westfield Shopping Mall, Main Post Office, Stark County Health Dept, Belden Village Transit Center.
106 Canton SW, Canton NW, BV Area, The Strip	16	Monday-Saturday hourly. Service Area: Canton: 6th, 9th, 11th St. SW, Bedford, Whipple Ave, Belden Village St, Portage Ave, Freedom Ave, Shuffle, Mega, Frank, Northwest area of Canton, Shorb Ave, Broad Ave, Wertz Ave, 12th St. Points of interest: Aultman Hospital, Canton Centre Mall, Wal-Mart, Meyers Lake Plaza, Mayfield Manor, Whippledale, Westfield Mall, Movies 10, Aultman North, Mercy Health Center, (North Canton Industrial Park), The Strip, Tinseltown, Wal-Mart, McKinley Senior High School, Pro Football Hall of Fame, Stark County Fairgrounds, Mercy Medical Center, Lehman Middle School.
107 East Tuscarawas/ East Canton	24	Monday-Saturday 1/2 hour. East Canton every 2 hours Service Area: East area of Canton and East Canton: East Tuscarawas, Belden Ave, 8th St., Lincoln Street. Points of interest: Belden School, Girard Gardens Senior Center, Canton Community Clinic, Dehoff Library, and the East Canton Library.
108 Canton/ Market/ Easton	16	Monday-Saturday hourly. Service Area: North Market area of Canton: Market Avenue, 14th St., and 15th St. and Easton. Points of interest: Civic Center, The Palace Theater, Washington Square, Walsh University, North Branch Library, Stark County District Library Main Branch.

Route Number & Name	Trips Per Day	Service Days, Frequency of Service Service Area and Points of Interest
110 Cherry/Warner/ Sherrick	32/16	Monday-Friday 1/2 hour. Service extends to 9:15 p.m. Saturday hourly. Service Area: Southeast area of Canton: Cherry Ave., Alan Page, Gateway Blvd, Sherrick, Warner Rd, Waynesburg Rd, 4th St SE, 5th St SE, 11th St SE, Gonder Ave, 13th St SE. Points of interest: Canton Urban League/ Southeast Community Center, Skyline Terrace Apts., Gateway Homes, SARTA Gateway offices/garage, Dehoff Library, Diebold, Allen School, Hartford Middle School.
112 North Canton/ Uniontown/ Hartville	10	Monday-Friday 1 ½ hour. Service Area: Northern Stark County, Whipple, Everhard, Main St., Edison (RT 619), Maple, Lake. Points of interest: North Canton, Greentown, Uniontown, Hartville, Hartville Kitchen, Hartville Flea Market, Westfield Mall, Hartville Plastics, Lake Community Library, North Canton Public Library.
113 Canton SW/ Harrison, Southway	16	Monday-Saturday hourly. Service Area: Southwest Canton: McKinley Ave., Harrison, Clarendon, 11th St., Maryland, Linwood, Raff Rd. and Southway. Points of interest: Goodwill Industries, Canton Police Boys Club, Souers Middle School, and Southway Industrial Park.
114 South Canton/ Southgate/ East Sparta	28/16	Monday-Friday 1/2 hour, East Sparta 4 hour. Saturday hourly to Southgate. Service Area: South and Southeast area of Canton: Cherry, 14th St., Market, Allen, Kimball, Cleveland South and Rt. 800. Points of interest: Passages School, Compton School, Canton South High School, Higgins Workshop, Southgate Shopping Center, East Sparta and Sandy Valley Library.
117 Shorb, Meyers Lake, Fairgrounds, SW Canton	16	Monday-Saturday hourly. Service Area: Northwest area of Canton: Cherry, 6th St., Shorb Ave., 12th St., Clarendon, Broad, Wertz., Whipple and Southwest area of Canton. Points of interest: YWCA, Lehman Middle School, McKinley Monument, Mercy Medical Center, McKinley Senior High School, Pro Football Hall of Fame, Stark County Fairgrounds, and Meyers Lake Plaza, Aultman Hospital, Canton Centre Mall, Walmart, and Mayfield Manor.
118 Canton SW/ Perry Twp/ Massillon	16	Monday-Saturday hourly. Service Area: Southwest area of Canton, Perry Twp., and Massillon: Market South, Southway, 17th Street, Navarre and Erie. Points of interest: VA Clinic, Timken Harrison/Dueber/Gambrinus, Sterilite, Perry Twp, Richville, Perry Hills Colony and Walmart.
119 Fulton, 25th, Harvard, 30th Street	16	Monday-Saturday hourly. Service Area: Northwest area of Canton: Fulton, 25th Street., Harvard, 30th Street. Points of interest: Summit Elementary School, Malone College, 30th Street Plaza, Choices School, Glenwood Middle School West, Frazer, Jewish Community Center.

Route Number & Name	Trips Per Day	Service Days, Frequency of Service Service Area and Points of Interest
120 Belden Village/N. Canton Loop	30/16	Monday-Friday 1/2 hour, extends to 9:30 p.m. Saturday hourly to N. Canton. Service Area: Jackson Township: Belden Village Ave, Higbee & Holiday, Dressler, Munson, Everhard, Frank and Strip Ave. Points of interest: Westfield Mall at Belden Village, Target, Walmart, The Strip, Kent State University and Stark State College.
122 Massillon Northwest & Southwest	15	Monday-Saturday hourly. Service Area: Northwest and Southwest area of Massillon: Lincoln Way East, Main Ave, 17th St, 23rd St, Tremont Ave, Walnut Rd, 9th St, Finefrock Rd and 6th Street. This route will no longer service Main Ave between Lincoln Way West and 17th Street NW. Service for this area will be provided on Lincoln Way NW between Main Ave and 17th Street NW. Points of interest: Massillon Boys & Girls Club, Emerson Elementary School, Finefrock Rd, Heinz Foods, Oberlin Industrial Park.
123 Massillon North	8	Monday-Friday, hourly 11:00 a.m. to 6:00 p.m. Service Area: North Massillon : Cherry, 8th St., Lake, Amherst Points of interest: Affinity Medical Massillon Campus, Amherst Shopping Center.
124 Massillon Southeast	15	Monday-Saturday, hourly 6:00 a.m. to 8:00 p.m. Service Area: Southeast Massillon: Tremont, Walnut, 3rd St, 13th St, Forest, 16th St, Huron, Shawnee, Harsh, 26th St, and 27th Street. Points of interest: Massillon Washington High School, Paul Brown Stadium, Walnut Hills, and Franklin Elementary School.
125 Massillon/Belden Village	15	Monday-Saturday hourly. Service Area: Massillon and Jackson Township area: Amherst, Lake, Wales, Fulton, Munson, Dressler, Higbee, Holiday. Points of interest: Amherst Shopping Center, Lake Cable, Affinity Medical Massillon Campus, Aultman West, Jackson High School, Jackson Library. Lake Cable Medical Center, Noble's Pond Shopping, Brown Mackie College
126 Massillon Northwest	16	Monday-Saturday hourly. Service Area: Northwest area of Massillon: 1st St. NW, 1st St. NE, Lake Ave, Cherry Ave and Lincoln Way W. Points of interest: Carter Lumber, K of C, Quarry Ridge, Mayflower Park Shopping Center, Rolling Hills Village Inc.
128 Massillon/ Canton SW	16	Monday-Saturday hourly. Service Area: Massillon and portions of Southwest Canton: Erie, Nova, Nave, Richville, Navarre, Southway/17th Street, Garfield, Dueber, Market and 3rd Street SE. Points of interest: Timken Gambrinus, Timken Harrison / Dueber, VA Clinic, CTCC, Fisher Foods, Perry Hills Colony, Richville, Nave Industrial Park and Walmart.

Route Number & Name	Trips Per Day	Service Days, Frequency of Service Service Area and Points of Interest
130 Alliance/Lincoln, Main, Nantucket	15	Monday-Saturday hourly. Service Area: Alliance: Prospect, East Main, Rockhill, Cambridge, Lincoln, West Vine, Nantucket, Shadowridge, Mayfield, Klinger, Gaskill, Johnson, Sturbridge. Points of interest: Alliance Early Learning School, Alliance Senior Center, South Lincoln Elementary School, Alliance City Cemetery.
131 Alliance	15	Monday-Saturday hourly. Service Area: East Main, Park, Union Ave, W. State. Points of interest: Carnation Mall, Wal-Mart, Buckeye Village, Mount Union University, Alliance Community Hospital, Alliance High School.
135 Alliance	15	Monday-Saturday hourly. Alliance Middle School every three hours. Service Area: Serves Alliance: Main, Liberty, Arch, E. State, S. Union Ave and Broadway. Points of interest: Alliance Middle School, Alliance Community Hospital, College Plaza, Rodman Library.
136 Alliance	15	Monday-Saturday hourly. Service Area: Alliance: Prospect, Arch, Patterson, Webb, Pike, Mahoning, Martin Luther King Jr. Viaduct, Liberty, Auld. Points of interest: College Plaza, Auld St. Industrial Area, Thompson-Snodgrass Park, Alliance Franklin Head Start, Maple Beach Park, Alliance Area Chamber of Commerce.
139 Canton/Louisville/ Alliance	16	Monday-Saturday hourly. Service Area: Canton, Louisville and Alliance: O'Jays Parkway, Mahoning, Lesh, Main, Chapel, SR 44, W. State, Sawburg Rd. Beeson/Ely, Main. Points of interest: Shipley Community Center, JR Coleman Center, William Hunter Center, Canton Negro Oldtimers, Carnation Mall & Walmart, Buckeye Village.

The three late night "industrial" routes, operating with a limited number of runs Monday through Saturday, were adopted to provide coverage when regular fixed route services were reduced in the late evening hours and one commute run during the day. These routes are as follows:

151 North Late Night Loop	3	Monday-Saturday 1 ½ hours, starting 9:45 p.m. Service Area: North part of Canton: Cleveland Ave, Everhard, Whipple Ave, Kevin, Tim, Strausser, Shuffel, Freedom, Applegrove, Strip Ave, Mega, Frank, University Dr, Dressler, Munson, Higbee Ave, 12th St. Points of interest: North Canton Industrial Park, The Strip, Stark State, Tinseltown, Movies 10, Walmart, Westfield Mall, Meyers Lake Plaza, Mercy Medical.
152 West Late Night Loop	3	Monday-Saturday 1 ½ hours, starting 9:45 p.m. Service Area: SW area of Canton to Massillon: Market Ave., Navarre Rd, Southway, Richville, Perry Drive, Sterilite, Erie St, Massillon Zone, Lincoln Way, Perry Heights, West Tusc, McKinley Ave, the Canton Zone. Points of interest: Aultman Hospital, Canton Center Mall, Walmart Canton, Walmart Massillon, Sterilite and Southway Industrial Park.

Route Number & Name	Trips Per Day	Service Days, Frequency of Service Service Area and Points of Interest
153 East Late Night Loop	3	Monday-Saturday 1 ½ hours, starting 9:45 p.m. Service Area: SE, NE, & SW area of Canton, Raff Rd, 17th SW, 13th SW, Maryland Ave, 9th St SW, Mahoning, The O'Jays Parkway, Harmont, 30th St NE, Harrisburg, 12th St NE, Cherry, Market Ave, Warner, Sherrick, Belden Ave, Allen Page. Points of interest: Aultman Hospital, Linwood Acres, Skyline Terrace Apts, Walmart, Ellis Dale Apts, C.H.I.P.s Townhomes.
154 Industrial Loop Express	2	Monday-Friday, commute service, one morning outbound, one afternoon return. Service Area: Downtown Canton, W. Tuscarawas, to Special Packaging.

Sunday and holiday service, which was initiated in March of 2003, was terminated in September of 2009. These changes were done as part of an overall 12 percent service reduction due to fiscal limitations due to lessening sales tax income and less State and Federal assistance.

Paratransit Services

In accordance with the Americans with Disabilities Act (ADA), SARTA offers Paratransit service to transport individuals who, because of a functional disability (physical or cognitive) cannot access or use the fixed route bus system. Qualified individuals must complete an application that must be signed by a licensed physician.

Qualified riders make reservations up to seven (7) days in advance and no less than 24 hours in advance. Paratransit service and hours reflect the days and hours of fixed route service. All rides are "curb-to-curb". Curb-to-curb means the driver picks the passenger up at the curb and drops the passenger off at the curb.

Other Services

Special Event Shuttles are operated during major community events to assist with traffic congestion and to increase the accessibility of events. These events include activities and during the Pro Football Hall of Fame Festival, park concerts, sports championships, and heavy holiday shopping seasons.

Community Coach Service is provided to approximately 22 Stark County senior citizens' housing facilities to improve their quality of life by increasing mobility. This service transports seniors to various shopping areas up to several times a week, dependent upon demand. Shopping locations are varied each week, with trips alternating between grocery and other shopping areas. This service is in addition to the available Paratransit service and assists in lowering the demand for single-ride trips.

Job and Reverse Commute (JARC) services by SARTA have been limited to the 154 route but may be expanded in the near future. SARTA has been reviewing plans to expand its' JARC services to assist companies not located on fixed routes where multiple employees could be served.

Transit Load Factors

The load factor is the performance measure for transit service. The load factor is calculated by dividing the total number of passengers passing the maximum load point by the number of seats passing the maximum load point during the operating period being considered. Load factors exceed 1.00 when passengers without seats have to stand. Many transit systems plan service for a load factor of 1.25 to 1.50 during the peak hour in the peak direction. Passenger tolerance for standing varies by the length of the trip. Passengers tolerate standing for trips of 10 minutes or less. All passengers should be provided a seat on trips over 30 minutes.

SARTA's objective is to provide a seat for every passenger. As ridership grows in the future this may not be feasible during the weekday peak period. SARTA's goal is a load factor of 1.0 or less on each route. Individual trips can exceed this rate for periods of less than 15 minutes.

SARTA System Evaluation

The SARTA 2010-2015 Transit Development Plan finalized in December of 2010 is the latest evaluation of SARTA's operations. This evaluation used a peer review based on National Transit Database (NTD) information and basic passenger data generated by the GFI Genfare Odyssey Validating Fareboxes.

The peer review compared SARTA and nine other transit systems, comparing unlinked passenger trips, average age (yrs.) of bus fleet, passenger miles traveled, average passenger trip length, vehicle revenue hours, vehicle revenue miles, passenger trips per revenue hour, passenger trips per revenue mile, operating costs per passenger trip, operating costs per revenue hour.

Unfortunately, this data does not allow a direct comparison with the Passenger On/Off study conducted in 2005. The most recent Passenger On/Off study, with counts completed in the fall of 2011, has not been finalized. Thus load factors are not available at this time but should be available for input into the transportation model before its next validation.

Table 4-2 SARTA Data from National Transit Database

	2005	2006	2007	2008	2009	2010
Annual Passenger Miles	8,688,743	11,110,795	11,482,458	13,016,615	10,878,887	9,303,883
Annual Unlinked trips	2,028,598	2,108,333	2,165,134	2,451,918	2,270,003	2,162,168
Average Weekday Unlinked trips	6,679	7,401	7,682	8,351	6,426	7,339
Average Saturday Unlinked trips	5,814	4,405	4,620	5,045	10,593	5,171
Annual Vehicle Revenue Miles	3,764,573	3,159,235	3,387,798	3,636,719	3,661,108	3,790,815
Annual Vehicle Revenue Hours	224,939	191,772	209,783	217,006	223,398	223,860

Ridership on fixed-routes during 2011 has been significantly higher than in 2010, seeing growth of more than 18% as of the November operating report. There were 297,741 more passenger trips cumulatively over the previous year. Only slight growth in fixed-

route miles and operating hours was experienced and paratransit operations had minor reductions. SARTA initiated a passenger travel training program in 2010 seeking to increase the use of fixed-transit for those who previously used paratransit services. The training is also provided to those with no experience in utilizing public transit including civic groups, seniors, school classes, college students, etc.

An additional strategy to improve transit ridership include the opening of the Belden Village Transit Center, thus completing a system of transit centers in the three largest cities (Canton, Massillon, and Alliance) and the most popular destination (the Belden Village area).

Please reference the CMP Strategies, Transit Management section, for information on in-progress and future projects.

CHAPTER 5 - CMP STRATEGIES

CMP Strategies

Congestion measured through the CMP can be addressed through alternative operational and management strategies to ensure the most efficient use of the existing and future transportation system. CMP strategies include the following:

a. Transportation demand management strategies such as carpooling, vanpooling, alternative work hours, telecommuting, and parking management.

b. Measures to encourage high occupancy vehicle (HOV) use such as HOV lanes, public transit improvements, guaranteed ride home and employer trip reduction ordinances.

c. Congestion Pricing

d. Growth management and activity center strategies

e. Access management techniques

f. Incident Management

g. Application of ITS technology

h. Traffic operations improvements such as intersection and roadway widening, channelization, geometric and signal improvements

i. Addition of general purpose lanes

Selection of Strategies

Effective congestion strategies depend on the type of congestion present in the area. The system-wide numbers show that congestion is not a serious problem in the area. The population of the region is not predicted to grow significantly in the future. Future increases in traffic are projected to occur because of increased trip making and longer trip lengths.

The RPC comprehensive planning section conducted surveys of local public officials and citizens in both 1992 and 2003. In these surveys, the public was asked to rank the importance of a number of planning issues. The public ranked traffic congestion and delays as the planning concern in both surveys.

Although the public is concerned with congestion, they are most interested in roadway and traffic operations improvements to relieve congestion. The 2030 Transportation Plan does include many projects to add general-purpose lanes. These projects include the extension of US 62 and US 30 freeways and several arterial widening projects. Transportation demand management, measures to encourage HOV use and congestion pricing generate little support. In surveys, the public does support growth management and access management techniques. These strategies are most useful in fast growing

areas to help control new development. Attempting to apply many access management techniques to existing development can be costly and face legal challenges.

ITS Applications

ITS is the acronym for Intelligent Transportation Systems, a program created under the US Department of Transportation. ITS embodies the application of computers and advanced technologies to improve and enhance transportation operations and safety. Traffic management, traveler information, commercial vehicle operations, public transit operations, and rural transportation management are major elements of providing real-time information through advanced technologies. SCATS, in cooperation with ODOT and AMATS, developed the Akron-Canton Regional ITS Architecture. The architecture is a roadmap for transportation systems integration in the 3-county region (Summit, Portage, and Stark) that covers the geographic area of AMATS and SCATS. The architecture covers a timeframe from the present out to the next ten years.

CMP Strategies Already Implemented

Urban Freeway Reference Markers

ODOT has installed urban freeway reference markers on I-77, US 30 and US 62 at 2/10-mile increments, which allow cellular telephone callers to report incident locations with greater accuracy. Emergency and towing dispatchers ask cellular telephone callers to look for these freeway reference markers to ensure that the incident can be found quickly.

Winter Snow and Ice Clearance

Road weather information system (RWIS) units have been deployed throughout the state of Ohio to furnish maintenance crews with real time information on weather conditions. This system has also been incorporated in the OTIS data available at the buckeyetraffic.org website.

OTIS - The Ohio Transportation Information System

This internet-based system, available at buckeyetraffic.org, provides motorists with searchable construction, road closure and temporary lane restrictions information. There also is seasonal snow and ice related roadway reporting. See also the Akron-Canton Freeway Management System, which provides additional data available through this system.

Access management techniques

The Stark County RPC is responsible for subdivision approval in the unincorporated areas of Stark County. As part of this process site improvement plans are required for commercial site improvements. As part of this process the RPC regulates the location and design of driveways ODOT also has adopted access control standards for new developments along state highways in the rural areas of the county.

SCATS CMP Recommendations

Akron-Canton Freeway Management System.

The Akron-Canton Freeway Management System has recently been implemented. Within Stark County this project covers I-77 from US 30 north to the Summit County line. Project components include traffic flow detection, closed circuit cameras, changeable message signs and control center equipment.

Some of the goals of this project are to:

1) Reduce incident related congestion by rapid detection of incidents and providing timely and accurate information to the traveling public so that they can make informed decisions relating to their route(s).
2) Enhance and facilitate incident management by effective sharing of incident information and resources among public safety and transportation agencies.
3) Improve safety of emergency personnel at incident sites by warning motorists approaching an incident site to be aware of emergency personnel and directing traffic away from the incident scene.
4) Reducing recurring congestion by providing accurate and timely information on existing traffic conditions and travel times to influence motorist demand (e.g. balance the roadway network).

For incident-related traffic congestion, the system will use dynamic message signs and existing highway advisory radio to route traffic around incidents. ODOT District 4 has published Traffic Control Management Plans detailing diversionary routes for major incidents. When determining diversionary route suitability, many factors were considered including: congestion, travel time, construction, safety, and ease of access.

The installation of dynamic message signs and web cameras throughout the corridor has almost been completed. Operating units can be accessed by the public via ODOT's buckeyetraffic.org website. Features at the website include access to the webcams; text from the dynamic message signs and highway advisory radios; information from road and weather sensors; road activity, closure and restriction data; traffic speed for select areas and winter conditions when available.

Transit Management

In the previous CMP SARTA had initiated its Advanced Communications Project that would have replaced the dispatch radio system with one including features such as Computer Aided Dispatch (CAD), an Automated Vehicle Locator (AVL) system, and an Automated Passenger Count (APC) system. SARTA was a Beta tester as Trapeze attempted to integrate these features utilizing both radio and cellular technologies.

Unfortunately, the integration failed, resulting in an unstable radio system and the contract was terminated.

SARTA has recently (Nov., 2011) entered into a contract with Avail Technologies to implement a communications system featuring the same (CAD, APC, AVL) and

additional features. The additional features take advantage of advances in technology that have occurred since the previous contract was awarded:

1. WEB based data feed providing real-time and predictive departure/arrival information;
2. a Smart phone application for arrival/departure information;
3. QR code stickers for bus stop locations to enable smart phones to access real-time information;
4. LED and LCD signs for arrival/departure information; and
5. Covert security features for vehicles.

Various features will be phased in as funds become available. Completion of the project will enable SARTA to more efficiently manage its system and provide transit traveler information both pre-trip and during the trip.

Traffic operations improvements

The following intersection and roadway widening, channelization, geometric and signal improvements are recommended and have been included in the SCATS TIP:

Table 5-1: Traffic Flow Improvements in the TIP

Project Name	Lead Agency	Description	SFY
STA Beeson St – Freshley Ave Roundabout	Stark Co Engineer	Construction of Roundabout at the intersection of Beeson Street and Freshley Avenue.	2015
STA SR93 (Cherry St) - Locust St Intersection	City of Canal Fulton	Reconstruction of Intersection with the extension of turn lanes and addition of new turn lanes and signals.	2015
STA Hills & Dales Rd. (CR 226-03.70)	Stark Co Engineer	Widening of the roadway from 2 to 5 lanes including signalization. Reconstruction of inadequate storm sewer system. Upgrade Hills & Dales Rd., Dressler Ave./Woodlawn Ave intersection.	2012
STA/SUM ITS	ODOT	Design, construction, and systems integration of a freeway management system in Stark and Summit counties. Includes traffic flow detection, cameras, dynamic message signs, and control center equipment.	2010
STA Mahoning Road Transit SR 153 (Mahoning Road)	SARTA	Streetscape and Economic Development project to improve traffic flow and safety. Project also to address roadway pavement, curbs, sidewalks, ramps, crosswalks, lights, signals.	2012
STA North Main Street Signals	City of North Canton	Interconnect and coordinate the individual traffic signals within the North Main Street Corridor from Everhard to Applegrove.	2013
STA Navarre Road SW Signals	City of Canton	Traffic signal system upgrade with a total of 14 intersections involved.	2013

STA North Main Widening Ph. VI	City of North Canton	Widening to 5 lanes – Reconstructing pavement - new curb, sidewalks, aprons, and decorative lighting.	2012
STA CR 44 4.65 Intersections of Paris/Easton and Paris/Meese	Stark Co Engineer	Paris/Meese Intersection improvement including profile corrections and widening.	2013
STA Fohl/Shepler Roundabout	Stark Co Engineer	Construction of single lane, modern roundabout.	2014
STA CR 170-02.85 (Trump Ave)/Georgetown	Stark Co Engineer	Intersection improvement, includes replacing existing signal and addition of turn lanes if warranted.	2012
STA 12th Street Corridor Improvements	City of Canton	Widening Market Street (SR43) approaches for addition of left turn storage lanes. Install coordinated signal system through East West cooridor networked with existing North South systems	2014
STA US 30 20.17 Signal	ODOT	Construction of new Traffic Signal at US 30 and Broadway Ave.	2012
STA US 0062 38.37/38.49 US-62 at Parkway and US-62 at Rockhill	City of Alliance	Upgrade traffic signal at Parkway intersection. Install new overhead flasher at Rockhill.	2012
STA SR 0153 00.80 - Mahoning Road Maple Avenue to Grace Avenue	ODOT	Streetscape Project to improve traffic flow and safety. Address roadway pavement, curbs, sidewalks, lights and signals.	2015
STA SR 0153 01.70 - Mahoning Road Grace Avenue to Harmont Avenue	City of Canton	Streetscape/Traffic Flow and Safety Improvements. Pavement, Curb, Sidewalks, Lights and Signals	2013
STA SR 153-05.50 (Main Street) From Louisville West Corp to SR 44	City of Louisville	Reconstruct & Rehab of SR153 with new curb gutters. sidewalk pavement Widening West of California.	2012
STA SR 619 (West Maple) Signal Coordination	Village of Hartville	Interconnect and coordinate four indpependent traffic signals along Maple Street (SR 619) Including LED signals and battery back up. Four Signals along 0.75 mile section of SR 619	2013
STA SR 800-07.05 From 43rd Street to IR-77. From 29th Street to Mill Street	ODOT	Widen to include turn lanes and improve street identification of side streets and driveway definition employing access management.	2014

In addition to these projects SCATS is recommending that its member agencies evaluate the signal timing at existing signalized locations where congestion is identified through the CMP. SCATS will assist with traffic counting services and technical assistance.

Measures to Encourage Bicycling and Non-motorized Travel

As part of the Comprehensive/Transportation Plan, SCATS has recommended the construction of almost 90 miles of bike and pedestrian routes. Although many users of these paths are recreational users, the paths provide access to the central business districts of the major cities and connect residential areas with schools and shopping facilities. In addition SARTA has implemented a bike-on-the-bus program to encourage the use of the bus and bicycle for longer trips. The bike and pedestrian path projects are recommended for construction throughout the life of the Transportation Plan.

CHAPTER 6 — CONCLUSION

This report documents the future performance of each link of SCATS CMP network and compares this performance to the baseline performance of the system. The CMP process at this point does provide information on where congestion will occur, how travel time will be affected, and how much delay will occur.

This report gives some indication of how congestion will change in the future. However, the CMP cannot identify all congestion that will occur on the transportation system. This is because it does not go into the details of traffic signal timing, turning movements, peak hour factors, geometric design, bus headways, and other factors that affect the capacity and level of service of individual links and intersections. The CMP instead provides a system-wide evaluation and analysis of the system.

The CMP is an excellent tool to quantify and evaluate alternative Transportation Plans and capacity-management strategies. It identifies the general locations and extent of congestion on the system. It does not provide final answers or dictate specific projects. Rather, it guides the decision-making process in transportation planning as a documented information system.

APPENDIX

This appendix contains a listing of all links in the traffic assignment network evaluated at Level of Service D, E or F in any of the scenarios discussed in Chapter 3. Each link is listed by its node numbers. The jurisdiction, general location and existing traffic count is then given. The next columns show the assigned one-way traffic volume and level of service for the link in each scenario first in the a-node b-node direction and then in the reverse direction.

Congested Highway Sections

Link	Location	Description	Existing Two-Way Count	A-B Direction						B-A Direction					
				2015 Traffic on 2015 System		2030 Traffic on 2015 System		2030 Traffic on 2030 System		2015 Traffic on 2015 System		2030 Traffic on 2015 System		2030 Traffic on 2030 System	
				1-Way Volume	LOS	1-Way Volume	LOS	1-Way Volume	LOS	1-Way Volume	LOS	1-Way Volume	LOS	1-Way Volume	LOS
980-6773	Alliance	Beeson from US-62 to Sawburg	7,500	5,258	C	5,538	C	8,689	E	5,114	C	5,417	C	4,492	C
3413-3416	Alliance	Simpson from Rockhill to Union	NA	4,019	C	5,038	D	4,753	C	2,759	B	2,768	B	2,326	A
801-802	Alliance	SR-183 from Ely to Diehl	11,500	4,977	B	6,167	B	9,472	D	6,858	C	7,936	C	7,496	C
802-803	Alliance	SR-183 from Ely to Diehl	11,500	4,862	B	6,059	B	9,203	D	6,506	B	7,547	C	7,169	C
888-6771	Alliance	SR-183 from Glamorgan to Broadway	12,070	6,221	C	7,356	C	7,973	C	7,756	C	9,015	D	9,283	D
889-6771	Alliance	SR-183 from Glamorgan to Broadway	12,070	7,205	C	8,479	D	8,798	D	6,408	C	7,600	C	8,253	D
885-886	Alliance	SR-183 from Overlook to Glamorgan	11,340	8,185	C	9,408	D	9,878	D	8,873	D	10,116	D	10,285	E
886-887	Alliance	SR-183 from Overlook to Glamorgan	11,340	8,303	D	9,525	D	10,001	D	8,280	D	9,638	D	9,814	D
885-3413	Alliance	SR-183 from State to Overlook	12,070	9,053	C	10,350	D	10,474	D	7,962	C	9,212	D	9,664	D
950-951	Alliance	US-62/SR-173 from Rockhill to Union	24,880	12,985	E	14,235	F	13,001	E	13,495	E	14,979	F	13,785	F
951-6034	Alliance	US-62/SR-173 from Rockhill to Union	24,880	12,654	E	12,518	E	10,919	E	11,362	E	12,460	E	11,144	E
947-950	Alliance	US-62/SR-173 from Sawburg to Rockhill	22,490	13,834	F	15,130	F	13,901	F	13,163	E	14,486	F	13,411	E
953-958	Alliance	US-62/SR-173 from Union to Arch	17,810	10,663	D	8,353	C	6,776	C	9,842	D	7,819	C	6,331	B
1037-6015	Canal Fulton	Locust from SR-93 to Market	NA	7,341	E	7,660	E	7,905	F	5,337	D	4,909	C	4,435	D
1040-6015	Canal Fulton	Market from High to Locust	2,600	3,573	B	3,693	B	3,175	C	5,555	D	6,455	E	6,655	E
1037-1204	Canal Fulton	SR- 93 from Locust to Steiner	6,980	6,389	C	7,467	C	7,105	C	6,972	C	8,507	D	8,182	C
2250-2526	Canton	4th from Harrison to Lawn	2,900	4,931	C	4,920	C	5,125	D	1,981	A	1,926	A	1,856	A
3037-3038	Canton	4th from Market to Walnut	800	3,881	E	3,775	E	3,768	E	155	A	202	A	201	A
2304-2305	Canton	6th SW from Bedford to Harrison	2,100	6,897	F	6,984	F	7,037	F	9,041	F	9,141	F	9,147	F
2300-2301	Canton	6th SW from Harrison to Dueber	2,700	4,867	D	4,910	D	5,074	D	5,132	D	5,099	D	5,194	E
2301-2304	Canton	6th SW from Harrison to Dueber	2,700	4,924	D	4,982	D	5,147	D	5,093	D	5,048	D	5,143	D
2544-2548	Canton	9th from Market to Cherry	3,300	1,157	A	1,208	A	1,744	A	3,191	B	5,046	C	5,192	D
2538-2539	Canton	9th from McKinley to Market	1,700	5,633	C	5,665	C	6,199	D	2,777	A	3,095	B	3,425	B
2552-2606	Canton	12th from Cherry to Gibbs	12,990	8,265	E	8,723	E	4,717	C	9,565	F	8,702	E	5,370	C
2572-2573	Canton	12th from Harrison to Monument	9,000	10,029	D	9,959	D	8,779	D	8,103	C	8,236	C	7,389	C
2573-2574	Canton	12th from Harrison to Monument	9,000	18,588	F	18,545	F	17,818	F	16,639	F	16,852	F	16,485	F
2569-2571	Canton	12th from Monument to Fulton	9,600	9,670	D	9,614	D	8,437	C	7,949	C	8,085	C	7,138	C
2571-2572	Canton	12th from Monument to Fulton	9,600	9,618	D	9,583	D	8,390	C	7,834	C	7,999	C	7,044	B
2211-2212	Canton	13th from Broad to Harrison	19,460	13,505	E	13,847	F	14,036	F	6,662	C	7,149	C	7,151	C
2212-2245	Canton	13th from Broad to Harrison	19,460	15,227	F	15,642	F	15,762	F	7,331	C	7,843	C	7,800	C
2245-2574	Canton	13th from Harrison to Monument	9,000	15,760	F	15,933	F	16,187	F	13,331	E	13,613	F	13,189	E
1339-3124	Canton	25th from Cleveland to Harvard	4,600	14,947	F	13,374	F	13,782	F	15,035	F	13,383	F	13,296	F
1339-1340	Canton	25th from Fulton to Cleveland	4,100	7,154	C	6,586	C	6,616	C	9,017	D	7,668	C	7,692	C
1340-1341	Canton	25th from Fulton to Cleveland	4,200	7,253	D	6,867	C	6,900	C	7,154	D	6,401	C	6,283	C
1341-1342	Canton	25th from Fulton to Cleveland	4,200	7,022	D	6,681	C	6,713	C	6,965	C	6,280	C	6,078	C
1342-1343	Canton	25th from Fulton to Cleveland	4,200	7,956	D	7,701	D	7,757	D	6,885	C	6,200	C	5,989	C

Congested Highway Sections

Link	Location	Description	Existing Two-Way Count	A-B Direction						B-A Direction					
				2015 Traffic on 2015 System		2030 Traffic on 2015 System		2030 Traffic on 2030 System		2015 Traffic on 2015 System		2030 Traffic on 2015 System		2030 Traffic on 2030 System	
				1-Way Volume	LOS	1-Way Volume	LOS	1-Way Volume	LOS	1-Way Volume	LOS	1-Way Volume	LOS	1-Way Volume	LOS
1394-1467	Canton	30th from Market to Martindale	12,360	2,113	A	2,045	A	6,821	E	14,263	F	14,029	F	8,514	F
2442-2443	Canton	Bolivar from Timken Place to Cleveland	3,400	14,704	F	15,825	F	15,720	F	1,739	A	1,449	A	1,497	A
2487-2489	Canton	Cherry from 11th to Walnut	10,890	6,371	B	6,840	C	8,294	C	10,546	D	10,496	D	11,206	E
2489-2490	Canton	Cherry from 11th to Walnut	10,890	6,336	B	6,799	C	8,249	C	10,501	D	10,445	D	11,148	E
2490-3058	Canton	Cherry from 11th to Walnut	10,890	6,336	B	6,799	C	8,249	C	10,501	D	10,445	D	11,148	E
2458-2460	Canton	Cherry from Sherrick to 14th	6,000	6,008	C	7,159	D	6,639	D	4,646	C	4,786	C	4,947	C
2460-2464	Canton	Cherry from Sherrick to 14th	6,000	6,085	C	7,224	D	6,700	D	4,230	B	4,491	B	4,651	C
2318-2319	Canton	Clarendon from 11th to 9th SW	800	5,523	D	5,685	D	5,612	D	4,715	C	4,652	C	4,604	C
2318-2329	Canton	Clarendon from 11th to 9th SW	800	4,606	C	4,547	C	4,487	C	5,321	D	5,495	D	5,414	D
1333-1334	Canton	Cleveland from US-62 to 30th	23,300	15,290	D	15,312	D	14,644	D	10,152	B	10,651	B	11,342	C
1343-1344	Canton	Fulton from 25th to I-77	16,900	9,982	C	9,877	C	9,667	B	12,973	D	12,073	C	12,286	C
1344-1345	Canton	Fulton from 25th to I-77	16,900	8,901	D	9,054	D	8,082	C	13,132	E	12,188	E	12,900	E
1345-1347	Canton	Fulton from I-77 to Broad	22,590	15,296	F	15,443	F	14,678	F	10,457	D	10,043	D	11,265	E
1347-1349	Canton	Fulton from I-77 to Broad	22,590	10,448	D	10,661	E	10,308	D	18,048	F	17,657	F	19,283	F
1349-1350	Canton	Fulton from I-77 to Broad	22,590	10,448	D	10,661	E	10,308	D	18,048	F	17,657	F	19,283	F
1352-4157	Canton	Fulton from I-77 to Broad	22,590	12,141	E	11,920	E	12,639	E	15,545	F	15,875	F	16,511	F
2823-2824	Canton	Fulton from Shorb to 7th	5,060	6,473	E	6,749	E	7,169	E	3,960	C	3,907	C	3,892	C
2880-2881	Canton	Fulton from Tusc to Shorb	5,700	2,294	C	2,159	C	2,302	C	3,385	E	3,225	E	3,183	E
1492-6839	Canton	Harmont from 30th to US-62	11,070	6,496	B	6,981	C	10,435	D	6,822	C	7,664	C	4,574	B
1491-6839	Canton	Harmont from US-62 to Columbus	4,600	2,469	A	2,708	A	4,574	B	2,347	A	2,497	A	10,435	D
2245-3432	Canton	Harrison from 13th to Lakeroad Blvd	1,700	11,818	E	11,842	E	11,905	E						
2295-2298	Canton	Harrison from 6th SW to SR-172	4,800	5,068	C	5,164	C	5,161	C	6,670	D	6,657	D	6,644	D
2298-2304	Canton	Harrison from 6th SW to SR-172	4,800	4,543	B	4,570	B	4,558	B	6,486	D	6,455	D	6,454	D
2218-2376	Canton	Harrison from US-30 to Navarre	11,500	6,538	C	7,055	C	7,015	D	4,755	B	4,495	B	4,281	B
1384-1567	Canton	Harvard from 25th to 30th	2,500	7,197	D	6,358	D	6,606	D	7,472	E	6,469	D	6,296	D
1397-1567	Canton	Harvard from 25th to 30th	2,500	7,352	D	6,343	D	6,172	D	7,069	D	6,222	D	6,463	D
3364-3255	Canton	I-77 NB from 13th to US-62	45,195	61,643	C	66,025	D	69,103	D						
3252-3257	Canton	I-77 Ramp from I-77N to US-62E	NA	19,883	E	21,512	E	23,197	E						
3253-3252	Canton	I-77 Ramp from I-77N to US-62E	NA	15,083	C	16,539	D	17,788	D						
3368-2295	Canton	I-77 Ramp from I-77S to Tusc	NA	18,005	D	17,697	D	18,237	D						
3469-3583	Canton	I-77 Ramp from I-77S to US-30E	NA	11,741	C	13,334	C	16,842	D						
3251-3257	Canton	I-77 Ramp from I-77S to US-62E	NA	16,891	D	17,807	D	21,232	E						
3585-3467	Canton	I-77 Ramp from US-30E to I-77N	NA	13,725	C	16,407	D	16,518	D						
3582-3467	Canton	I-77 Ramp from US-30W to I-77N	NA	11,708	B	13,832	C	16,877	D						
3247-3245	Canton	I-77 Ramp from US-62W to I-77N	NA	13,622	C	13,639	C	18,629	D						
3247-3250	Canton	I-77 Ramp from US-62W to I-77S	NA	17,199	D	17,710	D	20,127	E						

Congested Highway Sections

Link	Location	Description	Existing Two-Way Count	A-B Direction						B-A Direction					
				2015 Traffic on 2015 System		2030 Traffic on 2015 System		2030 Traffic on 2030 System		2015 Traffic on 2015 System		2030 Traffic on 2015 System		2030 Traffic on 2030 System	
				1-Way Volume	LOS	1-Way Volume	LOS	1-Way Volume	LOS	1-Way Volume	LOS	1-Way Volume	LOS	1-Way Volume	LOS
3366-3367	Canton	I-77 SB from 13th to Tusc	41,360	60,779	C	64,578	C	67,895	D						
3367-3368	Canton	I-77 SB from 13th to Tusc	41,360	60,779	C	64,578	C	67,895	D						
3369-3365	Canton	I-77 SB from Tusc to 13th	41,360	57,265	C	62,012	C	64,772	D						
3256-3363	Canton	I-77 SB from US-62 to 13th	45,195	57,795	C	61,459	C	65,305	D						
1491-1783	Canton	Lesh from Maret to Harmont	600	922	A	921	A	8,756	F	811	A	830	A	898	A
1229-1394	Canton	Market from 28th to 30th	17,150	2,388	A	2,536	A	5,890	A	16,257	D	16,495	D	13,203	C
1389-1390	Canton	Market from 28th to 30th	17,150	5,056	B	5,257	B	9,592	D	3,087	A	3,204	A	3,168	A
2816-2833	Canton	Market from 3rd to 6th N	8,580	4,961	D	4,830	D	4,957	D	3,087	B	3,156	B	3,353	B
3028-3038	Canton	Market from 6th to 3rd S	4,600	1,054	A	1,299	A	1,369	A	4,726	D	4,809	D	4,691	D
2540-2541	Canton	Market from 6th to 9th N	8,500	1,744	A	2,342	A	2,599	B	5,500	D	5,734	D	5,710	D
2540-2816	Canton	Market from 6th to 9th N	8,500	5,915	D	6,171	E	6,151	E	3,455	B	3,658	B	3,845	C
1272-1378	Canton	Market from Walnut to 25th	17,250	6,920	C	6,703	C	8,112	C	8,446	D	7,800	C	7,069	C
1378-1386	Canton	Market from Walnut to 25th	17,250	6,920	C	6,703	C	8,112	C	8,446	D	7,800	C	7,069	C
2185-2442	Canton	Shepler Church from Dueber to Cleveland	3,400	14,704	F	15,825	F	15,720	F	1,739	A	1,449	A	1,497	A
2393-2800	Canton	Southway from Perry to Whipple	10,330	6,470	C	6,430	C	6,825	D	6,123	C	6,133	C	6,690	D
2393-4075	Canton	Southway from Perry to Whipple	10,330	6,123	C	6,133	C	6,690	D	6,470	C	6,430	C	6,825	D
3055-3058	Canton	SR- 43 (Walnut) from 3rd to Cherry	4,590	10,501	E	10,445	E	11,148	F						
3057-3055	Canton	SR- 43 (Walnut) from 3rd to Cherry	4,590	10,207	E	10,023	E	10,699	E						
2864-2870	Canton	SR- 43 (Walnut) from 3rd to Tusc	8,210	10,086	B	10,030	B	10,938	D						
2865-2864	Canton	SR- 43 (Walnut) from 3rd to Tusc	8,210	10,324	B	10,461	C	11,274	D						
2661-4047	Canton	SR- 43 from 17th to US-30	11,460	10,856	F	11,275	F	10,568	C	2,156	A	2,032	A	3,022	A
2295-2296	Canton	SR-172 from Harrison 3rd SW Connector	13,750	14,326	D	14,528	D	14,358	D	6,118	A	6,473	A	6,205	A
2296-2525	Canton	SR-172 from Harrison 3rd SW Connector	13,750	11,125	E	11,108	E	11,193	E	6,963	C	7,293	C	7,043	C
2515-2516	Canton	SR-172 from Harrison to 3rd SW Connector	13,750	8,503	C	8,791	C	8,942	D	11,605	E	11,848	E	12,104	E
2516-2517	Canton	SR-172 from Harrison to 3rd SW Connector	13,750	8,503	C	8,791	D	8,942	D	11,605	E	11,848	E	12,104	E
2517-2520	Canton	SR-172 from Harrison to 3rd SW Connector	13,750	8,503	C	8,791	D	8,942	D	11,605	E	11,848	E	12,104	E
2524-2525	Canton	SR-172 from Harrison to 3rd SW Connector	13,750	20,475	E	20,797	E	20,954	E	11,125	C	11,108	C	11,193	C
2294-2295	Canton	SR-172 from Raff to Harrison	18,010	6,004	A	6,358	A	5,913	A	17,403	D	17,493	D	17,480	D
2186-2187	Canton	SR-800 from I-77 to Bolivar	7,700	16,024	F	16,757	F	16,666	F	2,995	A	2,851	A	2,976	A
2186-2443	Canton	SR-800 from I-77 to Bolivar	7,700	2,995	A	2,851	A	2,976	A	15,230	D	15,945	D	15,848	D
2187-2188	Canton	SR-800 from Mill to I-77	7,700	13,115	E	14,401	F	14,292	F	2,995	A	2,851	A	2,976	A
2188-2444	Canton	SR-800 from Mill to I-77	15,270	13,248	E	14,516	F	14,399	F	11,765	E	12,922	E	12,631	E
2440-2441	Canton	SR-800 from Mill to I-77	15,270	10,809	E	12,072	E	11,764	E	12,254	E	13,636	F	13,510	E
2441-2444	Canton	SR-800 from Mill to I-77	15,270	10,809	E	12,072	E	11,764	E	12,254	E	13,636	F	13,510	E
2185-3103	Canton	Timken Place from Dueber to Bolivar	1,290	4,809	D	2,768	B	2,796	B	4,052	C	3,497	B	3,524	B
3257-3259	Canton	US-62 EB from Cleveland to I-77	25,490	36,774	C	39,319	C	44,429	D						

Congested Highway Sections

Link	Location	Description	Existing Two-Way Count	A-B Direction						B-A Direction					
				2015 Traffic on 2015 System		2030 Traffic on 2015 System		2030 Traffic on 2030 System		2015 Traffic on 2015 System		2030 Traffic on 2015 System		2030 Traffic on 2030 System	
				1-Way Volume	LOS	1-Way Volume	LOS	1-Way Volume	LOS	1-Way Volume	LOS	1-Way Volume	LOS	1-Way Volume	LOS
1487-6830	Canton	US-62 from Columbus to Regent	33,300	17,683	D	18,769	D	2,482	A	16,085	C	17,422	D	638	A
1312-1337	Canton	US-62 Ramps from Cleveland to US-62	NA	12,297	C	13,683	C	16,132	D	2,841	A	2,786	A	2,272	A
3259-1312	Canton	US-62 Ramps from US-62 to Cleveland	NA	12,297	C	13,683	C	16,132	D						
6834-3272	Canton	US-62 WB from Harmont to Regent	12,550	14,696	D	15,079	D	15,478	A						
3258-3247	Canton	US-62 WB from I-77 to Cleveland	25,490	37,773	C	38,498	C	47,278	D						
3036-3057	Canton	Walnut from 6th to 3rd SE	NA	553	A	535	A	466	A	2,174	D	2,083	D	1,934	C
2337-2338	Canton	Whipple from 11th SW to Tusc	7,600	4,738	B	4,840	B	8,194	D	4,808	B	4,861	B	7,192	C
2338-2339	Canton	Whipple from 13th to 11th SW	3,800	3,450	B	3,418	B	6,378	E	4,571	C	4,732	C	7,333	E
2339-2341	Canton	Whipple from 13th to 11th SW	3,800	2,940	B	2,901	B	5,868	D	4,072	C	4,224	C	6,980	E
2183-2395	Canton Twp	Raff from Shepler Church to US-30	7,100	5,488	C	4,212	B	3,724	B	6,067	D	4,620	C	4,192	B
2182-2183	Canton Twp	Raff from US-30 to Southway	14,460	9,193	D	7,301	C	6,686	C	3,818	A	3,771	A	3,149	A
2182-2392	Canton Twp	Raff from US-30 to Southway	14,460	6,999	D	7,582	E	5,650	C	8,733	E	8,064	E	7,057	D
2691-4061	Canton Twp	SR- 43 from Baum to Sandy	12,260	5,996	D	7,805	E	7,607	E	6,190	D	7,804	E	7,723	E
4061-4062	Canton Twp	SR- 43 from Baum to Sandy	12,260	5,996	D	7,805	E	7,607	E	6,190	D	7,804	E	7,723	E
2694-2700	Canton Twp	SR- 43 from Millerton to 17th	12,260	6,615	C	7,935	D	7,607	C	6,314	C	7,802	D	6,912	C
2691-2692	Canton Twp	SR- 43 from Sandy to Millerton	11,880	6,570	D	8,110	E	7,718	E	6,431	D	8,251	E	7,348	D
2692-2694	Canton Twp	SR- 43 from Sandy to Millerton	11,880	6,552	D	8,094	E	7,693	E	6,413	D	8,242	E	7,329	D
2771-2772	East Canton	US-30 from Broadway to Cedar	13,310	8,120	D	10,932	E	1,457	A	8,111	D	10,808	E	1,650	A
2772-2773	East Canton	US-30 from Broadway to Cedar	13,310	8,462	C	11,322	E	1,906	A	8,630	C	11,373	E	2,104	A
2773-2775	East Canton	US-30 from Broadway to Cedar	13,310	8,313	C	11,176	D	1,884	A	8,552	C	11,293	D	2,018	A
2775-2777	East Canton	US-30 from Broadway to Cedar	13,310	9,195	D	12,087	E	2,822	A	9,284	D	12,029	E	2,947	A
2769-2770	East Canton	US-30 from Cedar to Wood	5,810	4,892	D	7,305	E	467	A	5,072	D	7,630	E	510	A
2766-2769	East Canton	US-30 from Wood to East Canton ECL	9,430	5,732	C	8,272	E	568	A	5,428	C	7,808	E	601	A
4008-4009	Jackson	Applegrove from Frank to Freedom	6,200	4,921	B	6,501	C	5,898	C	7,571	C	10,043	E	10,545	E
1159-4008	Jackson	Applegrove from Freedom to Whipple	10,200	3,265	A	4,479	B	4,097	B	5,939	C	8,312	D	8,068	D
1159-4166	Jackson	Applegrove from Freedom to Whipple	10,200	6,579	C	9,110	D	8,978	D	3,795	A	5,022	B	4,750	B
1158-4009	Jackson	Applegrove from Sunset Strip to Freedom	6,200	7,571	D	10,043	E	10,545	E	4,921	B	6,501	C	5,898	C
1237-3099	Jackson	Applegrove from Whipple to Pittsburg	17,000	7,894	C	9,397	D	7,005	C	9,919	D	11,172	E	13,824	F
1193-1754	Jackson	Belden Village from Dressler to Higbee	15,700	14,805	D	14,525	D	16,456	E	16,226	E	16,129	E	16,687	E
1193-4016	Jackson	Belden Village from Dressler to Higbee	15,700	14,288	D	14,731	D	15,162	D	11,796	C	12,282	C	14,145	D
1196-1754	Jackson	Belden Village from Higbee to Whipple	17,600	16,559	E	16,628	E	16,706	E	13,761	D	13,646	D	15,743	E
1196-3268	Jackson	Belden Village from Higbee to Whipple	17,600	14,514	D	14,026	D	17,337	E	16,873	E	17,117	E	18,558	E
1287-1288	Jackson	Everhard from Mall Entrance to Whipple	24,200	16,866	D	18,160	E	18,159	E	9,507	B	9,691	B	9,814	B
1288-1290	Jackson	Everhard from Mall Entrance to Whipple	24,200	8,448	B	8,919	B	8,981	B	14,450	D	15,578	D	15,260	D
1138-3988	Jackson	Frank from Fulton to University	9,900	6,753	C	7,428	C	7,813	C	7,724	C	8,301	D	8,408	C
1171-1222	Jackson	Frank from Fulton to University	9,900	8,881	D	9,069	D	9,137	D	8,087	C	8,193	C	8,851	D

Congested Highway Sections

Link	Location	Description	Existing Two-Way Count	A-B Direction						B-A Direction					
				2015 Traffic on 2015 System		2030 Traffic on 2015 System		2030 Traffic on 2030 System		2015 Traffic on 2015 System		2030 Traffic on 2015 System		2030 Traffic on 2030 System	
				1-Way Volume	LOS	1-Way Volume	LOS	1-Way Volume	LOS	1-Way Volume	LOS	1-Way Volume	LOS	1-Way Volume	LOS
1171-1228	Jackson	Frank from Fulton to University	9,900	8,087	C	8,193	C	8,851	D	8,881	D	9,069	D	9,137	D
1134-1166	Jackson	Frank from Portage to Applegrove	10,500	4,167	B	3,809	B	3,937	A	9,582	E	10,337	E	11,830	C
1135-1166	Jackson	Frank from Portage to Applegrove	10,500	8,743	D	9,238	E	10,854	C	3,693	B	3,280	A	3,407	A
1137-3224	Jackson	Frank from University to Portage	18,600	7,994	A	7,765	A	7,595	D	7,800	A	8,470	B	8,391	D
1227-1793	Jackson	Mt Pleasant from Lauby to Pittsburg	8,800	6,678	D	6,321	D	6,737	D	9,649	F	9,281	E	11,007	F
1230-1793	Jackson	Mt Pleasant from Lauby to Pittsburg	8,800	9,162	E	8,957	E	10,665	F	6,327	D	6,365	D	6,233	D
1087-1088	Jackson	Portage from Arlington to SR-241	12,740	6,087	C	7,626	D	7,800	D	5,112	B	6,024	C	6,278	C
1088-1123	Jackson	Portage from Arlington to SR-241	12,740	7,031	C	8,635	D	8,891	D	6,272	C	7,068	C	7,413	D
1165-3138	Jackson	Portage from Strip to I-77	37,800	20,046	D	21,720	E	22,170	E	18,831	D	21,097	E	22,617	E
1249-3138	Jackson	Portage from Strip to I-77	37,800	19,686	D	21,901	E	23,163	E	19,821	D	21,362	E	21,741	E
1249-1250	Jackson	Portage under I-77	29,400	14,628	C	20,609	D	19,429	D	14,851	C	13,697	B	15,722	C
1751-3429	Jackson	Shuffel from I-77 to Whipple	15,300	9,860	B	13,315	D	17,813	E	10,090	C	10,150	C	12,729	C
3427-5832	Jackson	Shuffel from I-77 to Whipple	15,300	13,752	D	15,442	D	17,445	E	13,231	D	18,679	E	22,615	F
3429-5832	Jackson	Shuffel from I-77 to Whipple	15,300	11,119	C	15,227	D	19,675	E	11,309	C	12,063	C	14,349	D
1235-1751	Jackson	Shuffel from Whipple to Pittsburg	15,200	7,180	B	7,198	B	10,610	E	7,710	B	6,621	B	2,184	A
3099-4166	Jackson	Shuffel from Whipple to Pittsburg	17,000	7,940	C	9,610	D	6,989	C	9,480	D	10,557	D	12,887	E
1169-6695	Jackson	Strip from Dressler to Mega	14,900	7,979	C	9,361	D	9,117	D	6,500	B	7,762	C	7,969	C
1165-6694	Jackson	Strip from Mega to Portage	10,300	8,963	D	9,578	E	10,162	E	10,935	E	11,851	E	11,439	E
6694-6695	Jackson	Strip from Mega to Portage	10,300	6,277	C	7,273	C	7,647	D	6,811	C	8,740	D	8,551	D
1203-3098	Jackson	Whipple from Applegrove to Shuffel	4,000	5,352	B	6,058	B	7,253	A	5,601	B	9,112	D	7,497	A
3098-4166	Jackson	Whipple from Applegrove to Shuffel	4,000	5,554	B	6,577	C	8,025	A	5,877	B	9,739	D	8,377	A
1287-1289	Jackson	Whipple from Belden Village to Everhard	23,200	15,367	C	15,455	C	16,465	C	22,591	D	24,218	E	25,339	E
1289-3441	Jackson	Whipple from Belden Village to Everhard	23,200	20,087	E	21,214	E	16,465	D	16,193	D	16,654	D	17,846	E
3268-3441	Jackson	Whipple from Belden Village to Everhard	23,200	16,193	D	16,654	D	21,637	E	17,596	E	18,502	E	17,603	E
3148-4010	Jackson	Wise from Whipple to Maple	3,900	168	A	182	A	181	A	4,429	C	5,407	D	5,761	D
1323-1364	Jackson	Woodlawn from 20th to Hills & Dales	9,100	7,913	D	7,584	C	7,406	C	8,994	D	8,710	D	8,402	D
1363-1364	Jackson	Woodlawn from 20th to Hills & Dales	9,100	8,216	D	7,925	D	7,581	C	7,137	C	6,781	C	6,578	C
3651-3668	Lake	Cleveland from Mt Pleasant to State	11,500	7,708	C	9,615	D	9,292	D	7,888	C	10,138	D	9,711	D
3668-3669	Lake	Cleveland from Mt Pleasant to State	11,500	8,307	C	10,249	D	9,991	D	8,495	D	10,417	D	10,052	D
3651-3652	Lake	Cleveland from State to Lake Center	10,100	9,851	D	12,986	E	12,530	E	9,227	D	11,101	E	11,335	E
3137-3626	Lake	Lake Center from Cleveland to Mogadore	3,200	935	A	742	A	810	A	2,118	B	4,144	D	2,385	B
3133-3680	Lake	Mogadore from SR-619 to Pontius	2,200	2,857	C	3,538	C	4,975	E	3,542	C	4,614	D	4,639	D
3624-3680	Lake	SR-619 from Cleveland to Mogadore	13,330	7,437	E	7,945	E	11,063	B	8,404	E	10,596	F	12,505	B
3132-3622	Lake	SR-619 from Mogadore to Market	13,330	6,190	B	8,669	D	9,725	B	5,892	B	7,230	C	8,923	B
3622-3680	Lake	SR-619 from Mogadore to Market	13,330	6,417	B	9,350	D	8,922	A	4,885	B	6,023	B	8,038	A
3623-3624	Lake	SR-619 from Summit to Cleveland	13,330	7,932	E	10,185	F	10,336	F	8,037	E	10,280	F	10,423	F

Congested Highway Sections

Link	Location	Description	Existing Two-Way Count	A-B Direction						B-A Direction					
				2015 Traffic on 2015 System		2030 Traffic on 2015 System		2030 Traffic on 2030 System		2015 Traffic on 2015 System		2030 Traffic on 2015 System		2030 Traffic on 2030 System	
				1-Way Volume	LOS	1-Way Volume	LOS	1-Way Volume	LOS	1-Way Volume	LOS	1-Way Volume	LOS	1-Way Volume	LOS
3623-3625	Lake	SR-619 from Summit to Cleveland	11,490	6,922	C	9,324	D	9,317	D	6,777	C	9,173	D	9,180	D
3398-3650	Lake	State from Summit CL to Cleveland	7,600	4,170	C	5,862	D	5,864	D	4,141	B	5,819	D	5,817	D
6773-6775	Lexington	Sawburg from Beeson to Vine	2,700	2,275	B	2,480	B	5,004	E	2,127	B	2,431	B	2,042	B
1556-5906	Louisville	California from Reno to US-62	5,800	4,632	C	5,030	D	4,409	C	4,919	D	5,082	D	5,913	D
1554-5906	Louisville	US-62 from California to SR-44	15,580	10,933	D	10,862	D	13,151	A	10,705	D	11,070	E	13,014	A
1824-2018	Massillon	Erie from North to Cherry	4,400	2,253	B	2,663	B	2,536	B	3,130	C	3,236	C	3,564	D
1824-2027	Massillon	Erie from North to Cherry	4,400	3,130	C	3,236	C	3,564	D	2,253	B	2,663	B	2,536	B
2026-2027	Massillon	Erie from North to Cherry	4,400	2,073	B	2,416	B	2,344	B	3,325	C	3,415	C	3,745	D
2096-2097	Massillon	Jackson from SR-172 to 12th	6,700	3,790	C	4,213	C	5,014	C	4,466	C	4,763	C	5,089	D
2097-3106	Massillon	Jackson from SR-172 to 12th	6,700	3,990	C	4,271	C	5,175	D	4,699	C	4,820	C	5,209	D
2058-5975	Massillon	SR-241 from Hankins to Lake	12,000	7,837	E	8,211	E	7,531	B	7,685	D	8,129	E	8,128	B
2064-5975	Massillon	SR-241 from Hankins to Lake	12,000	7,495	D	7,971	E	8,015	B	8,799	E	9,147	E	8,440	B
2055-2056	Massillon	SR-241 from Hills & Dales to Stuhldreher	13,650	6,792	D	7,497	D	6,768	A	5,141	C	5,470	C	5,286	A
2065-2072	Massillon	SR-241 from SR-172 to State	12,000	8,328	D	8,506	D	8,655	A	9,742	E	10,446	E	10,514	B
2072-2073	Massillon	SR-241 from SR-172 to State	12,000	8,698	D	8,786	D	9,004	A	9,936	E	10,646	E	10,694	B
2073-2086	Massillon	SR-241 from SR-172 to State	12,000	9,046	D	8,901	C	8,963	B	9,552	D	10,259	D	10,264	C
2064-2065	Massillon	SR-241 from State to Hankins	12,710	8,007	D	8,146	D	7,971	B	8,161	D	8,975	D	8,852	B
1814-1955	Massillon	US-62/SR-21 from Navarre to US-30	18,790	12,025	E	16,432	F	17,261	F	11,188	E	15,301	F	15,657	F
1814-1956	Massillon	US-62/SR-21 from Navarre to US-30	18,790	13,420	E	18,855	F	19,086	F	14,153	F	19,806	F	20,552	F
1956-3327	Massillon	US-62/SR-21 from Navarre to US-30	9,400	13,420	C	18,855	E	19,086	E						
3328-1956	Massillon	US-62/SR-21 from Navarre to US-30	9,400	14,153	D	19,806	F	20,552	F						
2995-2997	Minerva	Line from Main to Market	NA	3,052	C	4,830	E	3,714	D	2,246	B	2,535	B	2,612	C
3711-3737	Navarre	US-62/SR-21 from Canal to Wooster	8,640	5,034	B	7,231	C	7,156	C	8,261	C	11,235	E	11,255	E
3735-3736	Navarre	US-62/SR-21 from Canal to Wooster	8,640	5,800	B	8,818	D	8,812	D	4,369	B	6,528	C	6,438	C
3736-3737	Navarre	US-62/SR-21 from Canal to Wooster	8,640	7,206	C	10,226	D	10,232	D	5,731	B	7,882	C	7,802	C
1952-4027	Navarre	US-62/SR-21 from Wooster to Marland	11,770	9,403	D	11,834	E	11,702	E	9,261	D	11,821	E	11,895	E
3442-3717	Navarre	US-62/SR-21 from Wooster to Marland	11,770	9,137	D	11,627	E	11,495	E	9,005	D	11,622	E	11,694	E
3442-4027	Navarre	US-62/SR-21 from Wooster to Marland	11,770	9,312	D	11,882	E	11,956	E	9,466	D	11,900	E	11,768	E
3279-3380	Nimishillen	US-62 from Harmont to Broadway	23,040	13,074	E	12,896	E	17,167	A	13,661	E	14,162	F	15,008	A
1237-1238	North Canton	Applegrove from Pittsburg to Main	19,330	14,068	F	15,159	F	15,967	F	10,964	E	12,818	E	13,638	F
1238-1769	North Canton	Applegrove from Pittsburg to Main	19,330	12,333	E	12,992	E	13,887	F	8,990	D	10,287	D	11,095	E
1239-1769	North Canton	Applegrove from Pittsburg to Main	19,330	8,586	D	9,851	D	10,618	E	12,035	E	12,767	E	13,708	F
1244-1263	North Canton	Main from Charlotte to 7th	15,400	8,094	C	8,489	D	6,474	C	5,744	B	6,996	C	6,607	C
1280-1281	North Canton	Main from Schneider to Glenwood	17,900	9,579	D	9,975	D	7,831	C	7,678	C	8,638	D	7,814	C
2763-2766	Osnaburg	US-30 from East Canton ECL to Ravenna	8,150	5,750	C	8,193	E	658	A	5,541	C	7,892	E	685	A
6863-6864	Perry	Austin from SR-172 to Bailey	NA	5,013	D	5,162	D	5,066	D	6,593	E	7,096	E	6,970	E

Congested Highway Sections

Link	Location	Description	Existing Two-Way Count	A-B Direction						B-A Direction					
				2015 Traffic on 2015 System		2030 Traffic on 2015 System		2030 Traffic on 2030 System		2015 Traffic on 2015 System		2030 Traffic on 2015 System		2030 Traffic on 2030 System	
				1-Way Volume	LOS	1-Way Volume	LOS	1-Way Volume	LOS	1-Way Volume	LOS	1-Way Volume	LOS	1-Way Volume	LOS
2145-2146	Perry	Genoa from Southway to 13th	8,800	5,013	C	5,097	D	3,574	B	5,501	D	5,672	D	4,395	C
2148-2150	Perry	Perry from Southway to SR-172	13,400	8,406	C	8,859	C	7,882	C	9,796	D	10,075	D	8,950	D
2148-3130	Perry	Perry from Southway to SR-172	13,400	9,830	D	10,077	D	9,099	D	9,996	D	10,414	D	9,272	D
2179-3130	Perry	Perry from Southway to SR-172	13,400	9,738	D	10,207	D	9,028	D	9,587	D	9,866	D	8,801	C
2115-2175	Perry	Richville from US-30 to Nave	8,400	5,854	D	6,205	D	7,510	E	3,919	B	4,110	C	5,112	C
2116-2174	Perry	SR-627 from Stump to US-30	6,040	4,964	C	5,147	C	5,626	D	4,799	C	4,745	C	4,710	C
1954-5928	Perry	US-62/SR-21 from Marland to Navarre	16,200	10,491	B	13,561	C	13,322	C	12,435	C	16,944	D	16,843	D
5838-1216	Plain	I-77 Ramp from I-77N to Whipple	NA	11,866	C	11,182	B	17,913	D						
1575-1576	Plain	Kirby from US-62 to Columbus	NA	3,082	C	3,976	D	3,059	C	3,435	C	4,583	D	3,948	D
1576-5902	Plain	Kirby from US-62 to Columbus	NA	3,082	B	3,976	C	3,059	B	3,435	C	4,583	D	3,948	C
1466-1467	Plain	Martindale from 30th to Plain Center	6,600	6,167	D	5,882	D	3,471	B	5,387	C	5,185	C	3,832	B
1455-1785	Plain	Middlebranch from 55th to Schneider	9,400	6,058	D	6,284	D	6,666	D	5,379	C	5,382	C	5,401	C
1468-1469	Plain	Middlebranch from US-62 to Martindale	7,000	1,568	A	1,542	A	2,990	B	1,740	A	1,706	A	7,644	E
1328-1359	Plain	SR-687 from Hills & Dales to Lakeside	25,200	14,438	C	14,344	C	14,667	C	15,718	C	15,933	C	16,521	D
1470-1471	Plain	US-62 from 30th to Harrisburg	41,950	21,364	E	22,662	E	3,503	A	19,989	D	20,773	E	4,862	A
1470-5837	Plain	US-62 from 30th to Harrisburg	41,950	20,156	F	20,872	F	5,232	A	22,686	F	23,922	F	3,178	A
1471-1472	Plain	US-62 from 30th to Harrisburg	41,950	21,364	E	22,662	E	3,503	A	19,989	D	20,773	E	4,862	A
1484-1486	Plain	US-62 from Harrisburg to Columbus	31,020	19,510	D	20,752	D	4,362	A	19,883	D	21,333	D	4,596	A
1484-5964	Plain	US-62 from Harrisburg to Columbus	31,020	19,883	D	21,333	D	4,596	A	19,510	D	20,752	D	4,362	A
1487-5964	Plain	US-62 from Harrisburg to Columbus	31,020	16,990	C	18,028	C	2,584	A	17,683	C	18,769	D	2,482	A
1435-1436	Plain/Lake	Mt Pleasant from Cleveland to Market	4,000	2,517	B	2,852	B	3,304	B	3,314	C	4,213	D	4,522	C
1436-1774	Plain/Lake	Mt Pleasant from Cleveland to Market	4,000	2,517	B	2,852	B	3,304	B	3,314	C	4,213	D	4,522	C
1230-1231	Plain/Lake	Mt Pleasant from Pittsburg to Cleveland	9,600	8,348	F	8,570	F	10,068	C	10,645	F	11,384	F	14,363	E
1231-1232	Plain/Lake	Mt Pleasant from Pittsburg to Cleveland	9,600	6,027	E	6,292	E	7,461	B	8,247	F	8,935	F	11,451	D
1232-4111	Plain/Lake	Mt Pleasant from Pittsburg to Cleveland	9,600	6,027	E	6,292	E	7,461	B	8,247	F	8,935	F	11,451	D